

C O H E S I V E C O M M U N I T Y

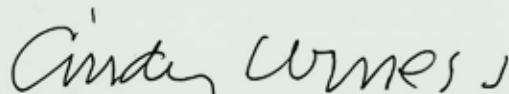


SIGNATURE PAGE

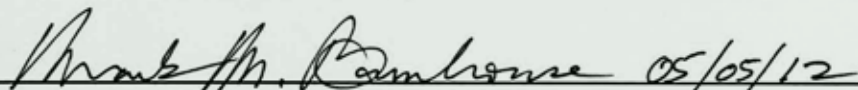
A Design Thesis Submitted to the
Department of Architecture and Landscape
Architecture
of North Dakota State University

By Jeffrey Mellgren

In Partial Fulfillment of the Requirements
for the Degree of
Master of Architecture



Primary Thesis Advisor:

 05/05/12

Thesis Committee Chair:

May 2012
Fargo, North Dakota

NONEXCLUSIVE DISTRIBUTION LICENSE

By signing and submitting this license, I (Jeffrey Mellgren) grants to North Dakota State University (NDSU) the non-exclusive right to reproduce, translate (as defined below), and/or distribute this submission (including abstract) worldwide in print and electronic format and in any medium, including but not limited to audio and video.

I agree that NDSU may, without changing content, translate the submission to any medium or format for the purpose of preservation.

I also agree that NDSU may keep more than one copy of this submission for purposes of security, back up and preservation.

I represent that the submission is your original work, and that you have the right to grant rights contained in this license. You also represent that your submission does not, to the best of your knowledge, infringe upon anyone's copyright.

If the submission contains material for which you do not hold copyright, you represent that you have obtained the unrestricted permission of the copyright owner to grant NDSU the rights required by this license, and that such third party owned material is clearly identified and acknowledged within the text or content of the submission.

IF THE SUBMISSION IS BASED UPON WORK THAT HAS BEEN SPONSORED OR SUPPORTED BY AN AGENCY OR ORGANIZATION OTHER THAN NDSU, YOU REPRESENT THAT YOU HAVE FULFILLED ANY RIGHT OF REVIEW OR OTHER OBLIGATIONS REQUIRED BY SUCH CONTRACT OR AGREEMENT.

NDSU will clearly identify your Jeffrey Mellgren as the author(s) or owner(s) of the submission, and will not make any alteration, other than as allowed by this license, to your submission.

name: _____

date: _____

Jeffrey Mellgren
08 May 2012

T A B L E O F C O N T E N T S

S O I

P R O P O S A L

P R O G R A M

Thesis Abstract	1
Problem Statement	2
Statement of Intent	3
Narrative	4
User/Client Description	5
Major Project Elements	6
Site Information	7
Project Emphasis	8
Research Direction	9
A Plan for Design Methodology	10
Project Documentation	11
Project Schedule	12
Project Timeline	13
Previous Experience	14
Theoretical Premise Research	15-25
Typological Research	26-48
Historical Context	49-57
Project Goals	58-59
Site Analysis	60-74
Programmatic Requirements	75-77
Final Design	78-91
Appendix	92-95
Reference List	96-97
Personal Information	98

Cohesive Community

Military Chapel - Outreach Center - 46,500 sqft
Minot AFB, ND

How can the development of a place foster and nourish a sense of community and well being?"

A place can create an atmosphere of encouragement and community. Those who gather with a common purpose will connect and grow.

To create this environment the project typology is a base chapel and outreach center. The development of an outreach center on a base can be a place that encourages interaction and strengthens hope in others. The military creates a unique design problem and opportunity due to it's harsh environment, yet strong sense of community. Meeting the spiritual needs of it's people is vital to the mission and well being of the base.

SOI

SOI

KEY WORDS: BASE PLANNING, CHAPEL, MILITARY, OUTREACH CENTER

How can the development of a place foster and nourish a sense of community and wellbeing?



STATEMENT OF INTENT

TYPOLGY:

Military Base Outreach Center

THEORETICAL PREMISE/UNIFYING IDEA:

The development of an outreach center on a base can be a place that encourages interaction to help bring people together. A place becomes a community when people successfully interact due to the nature of the built environment.

STATE THE PROJECT JUSTIFICATION:

People who live on a military base carry a strong sense of cohesiveness through the mission that each person lives. Each family carries a mission to support the member who serves. Families carry a great responsibility that should not be carried out alone. Military families must have a community that brings them together and encourages supportive interaction. Beyond supportive interaction is a greater hope found in a person's faith or spirituality.

PROPOSAL

PROPOSAL

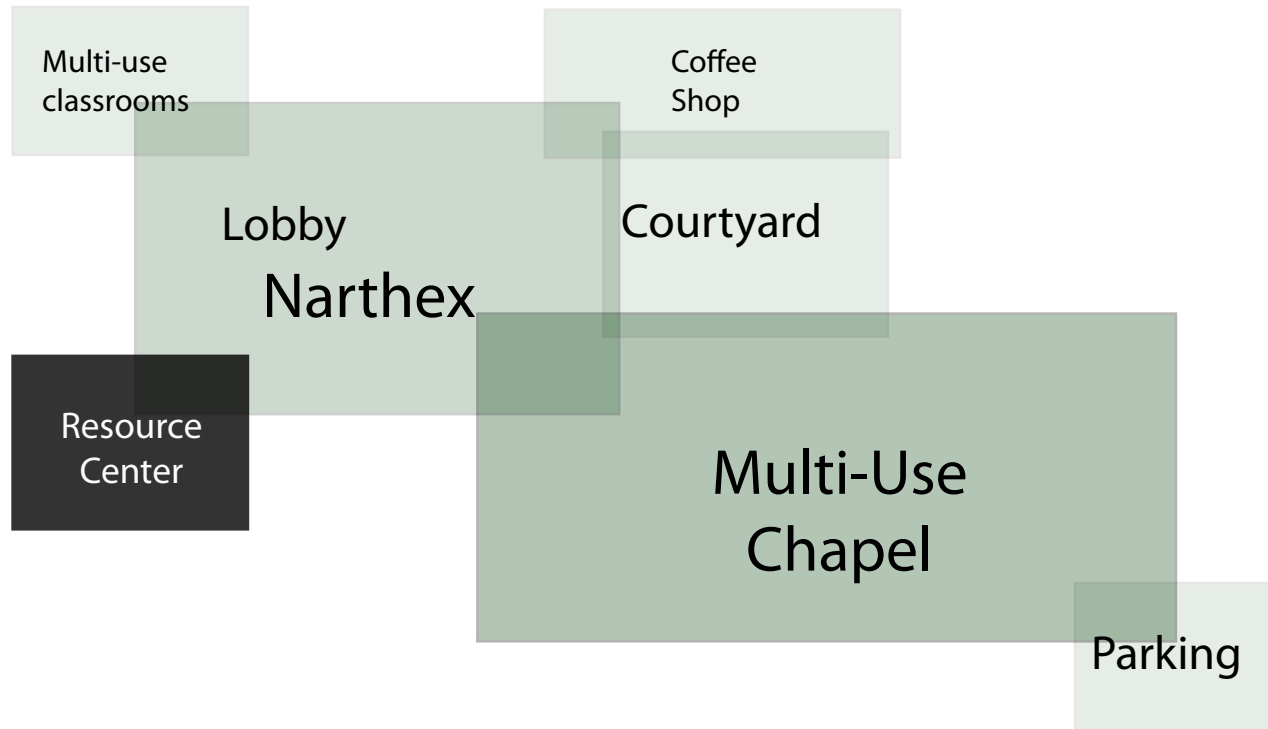
The purpose of this thesis is to develop a place that creates a nourishing sense of community and well being. I will explore the possibilities that a base outreach center can have on the well being of military families. The base that I will explore will be Minot Air Force Base (AFB) in Minot, North Dakota. Minot AFB is a growing community with expanding missions. The military can be a stressful environment. The community that houses these members should seek to nourish and support that lifestyle. This project is much more than the physical structure being built. The spirituality and faith of a person is more important and this place will serve the diverse needs of those who occupy it.

This Project will be designed for Minot AFB. The development will be used by the members of Minot AFB. The Minot base serves 12,865 personnel, nearly 1,000 more than a year ago (Associated Press, 2011). The chapel and outreach center will serve the expanding community. The new project will also be a strong move to create more interaction of the people who live on base. The demographics, such as family size, age and beliefs will vary. The design should accommodate a variety of needs, due to the diversity of military members. More specifically the design should accommodate for families with children, young couples, and singles of all ages.

MAJOR PROJECT ELEMENTS

PROPOSAL

6



SITE INFORMATION

North Dakota

Minot

Minot AFB

Details:

The site provides an opportunity to accommodate a growing population. This location also has a harsh climate and atmosphere which needs to be supported through a successful design.

PROJECT EMPHASIS

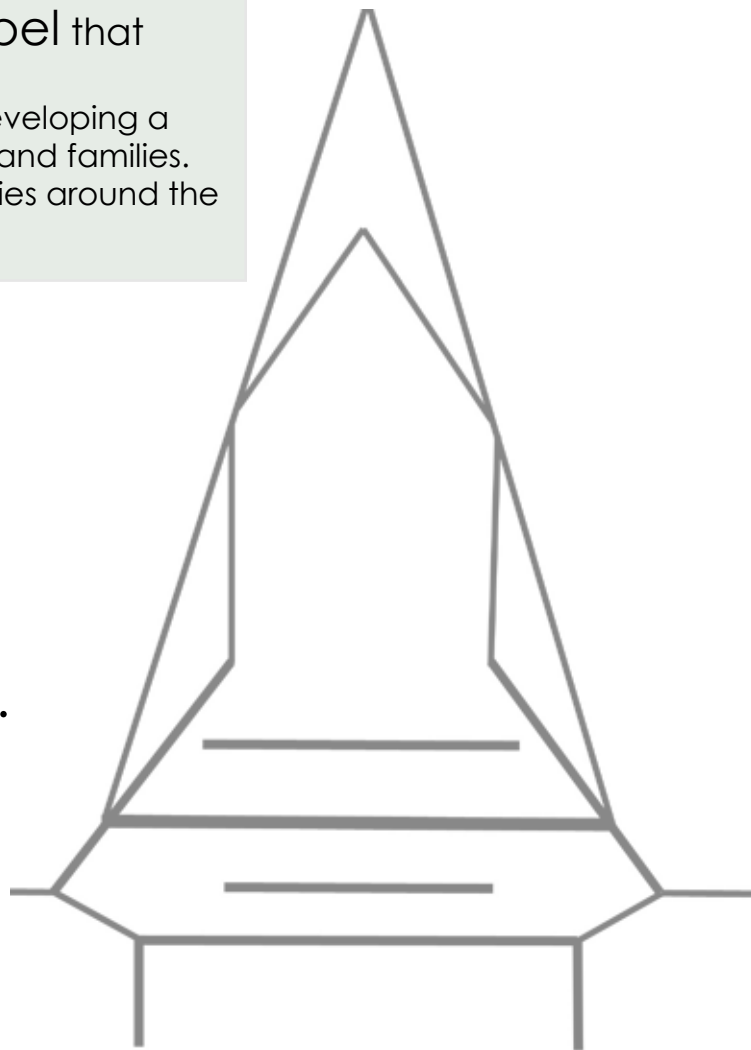
PROPOSAL

∞

The emphasis will be a multi-use chapel that includes spaces supporting its mission.

The goal of this project will be designing and developing a community that supports interaction of people and families. The community will also be supported by activities around the area.

The emphasis will be a multi-use chapel and the spaces supporting its mission.



Research will be conducted in the following areas:

The Theoretical Premise/Unifying Idea:

increased health and well being due to a successful

Project Typology: military base chapel & outreach center

Historical Context: military life, base community

Site Analysis: minot AFB and surrounding area

Programmatic Requirements:

community and worship spaces for various faiths and spirituality

Quantitative Data

Statistical Data:

Demographics

- Household Types
- Age

Scientific Data:

Direct through Instrumental
or Experimental
or Archival Research
(Library, Internet, Base Documents)

Direct Observation (Site Visit)

Local Survey (Site Visit)

Archival Research

Direct Interviews:

- Cadets
- Active Duty Members
- Base Civil Engineers

PROJECT DOCUMENTATION

COMPILATION OF RESEARCH will be added to this project book as information is gathered.

This project will be added to the school archives FUTURE RESEARCH.

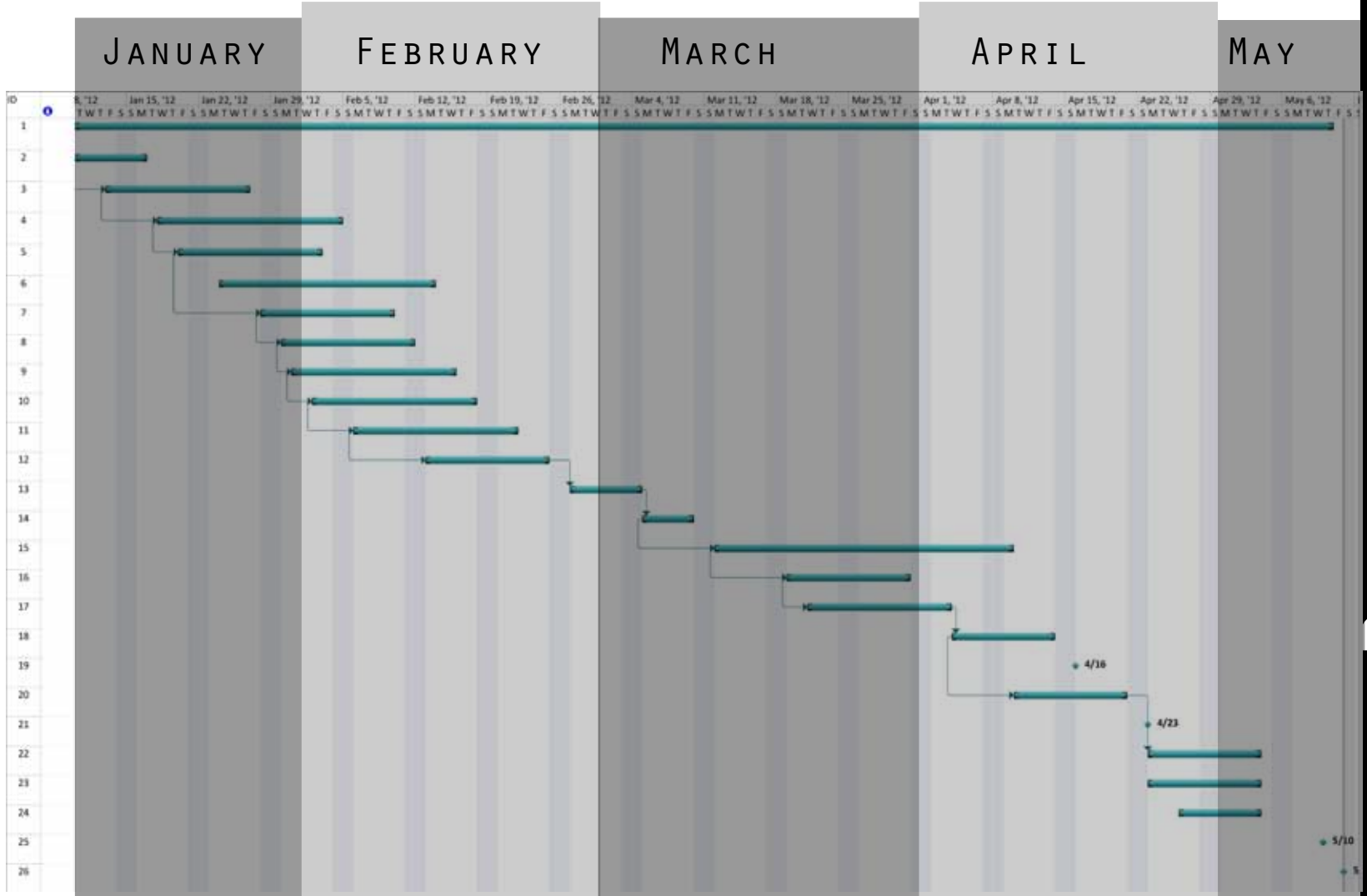
I will focus on presentation boards and a site model for PRESENTATION OF THE PROJECT.

A WEEKLY TO TWO-WEEK COLLECTION of research material will ensure maintainance of continuity.

PROJECT TASKS

Task Name	Duration	Start	Finish
Project Documentation	88 days	Tue 1/10/12	Thu 5/10/12
Context Analysis	5 days	Tue 1/10/12	Mon 1/16/12
Conceptual Analysis	10 days	Fri 1/13/12	Thu 1/26/12
Spatial Analysis	14 days	Wed 1/18/12	Sat 2/4/12
ECS Passive Analysis	10 days	Fri 1/20/12	Thu 2/2/12
Site Plan Development	15 days	Tue 1/24/12	Mon 2/13/12
Floor Plan Development	10 days	Sat 1/28/12	Thu 2/9/12
Structural Development	11 days	Mon 1/30/12	Sat 2/11/12
Materials Development	12 days	Tue 1/31/12	Wed 2/15/12
Envelope Development	12 days	Thu 2/2/12	Fri 2/17/12
Section Development	12 days	Mon 2/6/12	Tue 2/21/12
ECS Active Analysis	10 days	Mon 2/13/12	Fri 2/24/12
Preparation for Review	6 days	Mon 2/27/12	Sun 3/4/12
Midterm Reviews	5 days	Mon 3/5/12	Fri 3/9/12
Project Revisions	21 days	Mon 3/12/12	Mon 4/9/12
Context Redevelopment	10 days	Mon 3/19/12	Fri 3/30/12
Structural Redevelopment	10 days	Wed 3/21/12	Tue 4/3/12
Presentation Layout	8 days	Wed 4/4/12	Fri 4/13/12
CD Due to Thesis Advisers	0 days	Mon 4/16/12	Mon 4/16/12
Plotting and Model Building	9 days	Tue 4/10/12	Fri 4/20/12
All Exhibits installed on the 5th Floor	0 days	Mon 4/23/12	Mon 4/23/12
Thesis Exhibit	9 days	Mon 4/23/12	Thu 5/3/12
Preparation for Presentation	9 days	Mon 4/23/12	Thu 5/3/12
Final Thesis Reviews	6 days	Thu 4/26/12	Thu 5/3/12
Final Thesis Document Due	0 days	Thu 5/10/12	Thu 5/10/12
Commencement	0 days	Fri 5/11/12	Fri 5/11/12

PROJECT SCHEDULE



PROPOSAL

13

PREVIOUS STUDIO EXPERIENCE

PROPOSAL

2008

FALL

TEAHOUSE
BOATHOUSE

PROFESSOR:
DARRYL BOOKER

2009

SPRING

DWELLING
NEIGHBORHOOD
DANCE STUDIO

PROFESSOR:
MEGHAN DUDAH

FALL

WELLNESS CENTER
RESEARCH FACILITY

PROFESSOR:
CINDY URNESS

2010

SPRING

DESIGN FIRM
PERFORMANCE
HALL

PROFESSOR:
RON RAMSEY

FALL

MIXED USE
HIGH-RISE
DEVELOPMENT

PROFESSOR:
DAVID CRUTCHFIELD

2011

SPRING

TEMPORARY
HOUSING
DEVELOPMENT

PROFESSOR:
PAUL GLEYE

FALL

MIXED BUILDING
FARGO

CITY CENTER

PROFESSOR:
PAUL GLEYE

PROGRAM

15
PROGRAM

Introduction:

The foundation for this project lies not in the seen, but in the unseen. The foundation of this project is faith. This thesis accomodates the military life.

"It does not matter what happens to us, but our reaction to what happens to us is of vital importance" (*Sanders, 1994, p.119*).

I believe the same applies to architecture. In the end, it is not what we design that really matters. Rather, how people react and respond to what is created is what is most important. It takes faith to make anything worthwhile happen. This project accomodates those who serve in the military.

Military life is challenging but rewarding as well. To create architecture that accomodates the military life we must explore the lifestyle of those who live it. The following topics will enhance understanding of the relationship of faith, military and architecture.

Contents

- Foundation of Faith
- Military Life
- Community
- Base as a City
- Physical/Aesthetic

"It does not matter what happens to us, but our reaction to what happens to us is of vital importance"
-J. Oswald Sanders

Foundation of faith:

“True, physical weapons are indispensable, but in the final analysis it is the human spirit, the spiritual balance, the religious fervor, that wins the victory. The soldier's heart, the soldier's spirit, the soldier's soul, are everything.”
- George C. Marshall
(Brinsfield, 2011)

When people think of the military they think of big guns, missiles and jets - the physical objects of war. The most important thing is what is unseen. The human spirit relies on faith in difficult situations. Too often we rely on the “things” of this world to live our life. An important aspect of this design is to direct people to what is most important. The phrase, “God, Family, Country” is often used to describe ones top priorities. The design for this thesis will reflect such priorities.

When someone in the military gets deployed it not only effects that person, but those left behind. Family must rely on trusting something greater than themselves. Life does not give you what you want at times. Therefore, we must rely not on circumstances, but what lies ahead.

The military is about humble service and being of strong character. “Integrity first, Service before self and Excellence in all we do” (U.S. Air Force, 2012). These values are based upon basic moral principles far greater than ourselves. A strong source comes from the Christian faith. The teachings of the Bible lay out a strong foundation for the way we are to live out our lives.

THEORETICAL PREMISE

It all starts with thoughts. Thinking about ways to excel in excellence will inspire us to lead a life of excellence. Doing things with all the strength God provides. These are simple truths that flood the Bible with specific examples of how this is implemented. There is no greater story than that of Jesus Christ who laid down his own life.

"This is how we know what love is: Jesus Christ laid down his life for us. And we ought to lay down our lives for our brothers and sisters."

(1 John 3:16, New International Version)

This is to be a way of life. This is most often portrayed in the military when one lays down his life to save many. Sacrifice is the ultimate gift of life for another. This is very evidently taught in the Christian faith. It is upon these morals that our country was founded. From there, our government and military was implemented to "do justice..." and preserve our freedom. The Bible not only gives us simple principles to live out life but specifically gives hope and strength to those who go into battle.

"Whoever walks in integrity walks securely"

Proverbs 10:9 (NIV)

"Do nothing out of selfish ambition or vain conceit. Rather, in humility value others above yourselves, not looking to your own interest but the interest of others."

Philippians 2:3-5 (NIV)

"Finally brothers, whatever is true, whatever is honorable, whatever is just, whatever is pure, whatever is lovely, whatever is commendable, if there is any excellence, if there is anything worthy of praise, think about such things." Philippians 4:8 (NIV)

The Soldier's Psalm

Psalm 91 states,

“ 1 Whoever dwells in the shelter of the Most High
will rest in the shadow of the Almighty.
2 I will say of the LORD, “He is my refuge and my fortress,
my God, in whom I trust.”
3 Surely he will save you
from the fowler's snare
and from the deadly pestilence.
4 He will cover you with his feathers,
and under his wings you will find refuge;
his faithfulness will be your shield and rampart.
5 You will not fear the terror of night,
nor the arrow that flies by day,
6 nor the pestilence that stalks in the darkness,
nor the plague that destroys at midday.
7 A thousand may fall at your side,
ten thousand at your right hand,
but it will not come near you.
8 You will only observe with your eyes
and see the punishment of the wicked.
9 If you say, “The LORD is my refuge,”
and you make the Most High your dwelling,
10 no harm will overtake you,
no disaster will come near your tent.
11 For he will command his angels concerning you

to guard you in all your ways;
12 they will lift you up in their hands,
so that you will not strike your foot against a stone.

13 You will tread on the lion and the cobra;
you will trample the great lion and the serpent.

14 “Because he loves me,” says the LORD, “I will rescue him;
I will protect him, for he acknowledges my name.

15 He will call on me, and I will answer him;
I will be with him in trouble,
I will deliver him and honor him.

16 With long life I will satisfy him
and show him my salvation.”
(NIV)

“Hear oh Israel, today you are drawing near for battle against your enemies: let not your heart be faint. Do not fear or panic or be in dread of them, for the Lord your God is He who goes with you to fight for you against your enemies, to give you the victory...”
(Deuteronomy 20:3-5, NIV)

THEORETICAL PREMISE

Military Life

The core values of the Air Force are as follows: Integrity first, Service before self and Excellence in all we do. Military life certainly creates a unique environment and attraction in itself. Military members look to the well being of those around them before themselves. The demands of military life are exhausting. In everyday life expectations are higher and as a result there is an increased sense of pressure. A person who joins the military knows this expectation as their duty and takes an oath to "take this obligation freely without any mental reservation or purpose of evasion" (AF Mentor, 2009).

Even though the person expects this, there are events and situations that may adversely affect their health and well being. The military includes people and families of all types. It is not just the individual military member, but their family especially who will be effected by this environment. Specifically, there are three main issues; relocation, separation and reunion. Military members will experience relocation as often as every year. Moving is a high stress activity due to the readjustment of daily living and adaptation to a new environment. Separation and reunion occur during and after the deployment of a service member. Factors of separation may include; care of children, relationship maintenance, boundary negotiation and media coverage. (Reinkober Drummet, Coleman & Cable, 2003)



"The major attraction of any city is
its **people**,
its life and vitality." (Gehl, 2006)

"Integrity first,
Service before self,
Excellence in all we do"
(U.S. Air Force, 2012)

The space is not the final factor,
rather the holistic effect and
interaction between the people
who occupy that space.

The Air Force consists of 19% women and supports 442,739 family members (AFPC, 2011). First, this shows that there are many mothers in the Air Force who are away from the home during the work hours. This is if they are not deployed and have to be away from their children for up to a year. "31, 407 active duty members are married to another active duty member" (AFPC, 2011). This means that there is a chance that both the mother and the father of children are active and working most of the day. There is a great need for child care and strong social networks to support families, because "59% of the Air Force is currently married" (AFPC, 2011). It is very difficult to maintain a strong relationship when a spouse is gone for months at a time. The need for support during and after a deployment is essential for balancing priorities and keeping a healthy relationship. Support can include anything from counseling programs to simply doing activities together.


The goal of this project is to create a physical environment or space that can support the people in this harsh psychological environment. The space is not the final factor, rather the holistic effect and interaction between the people who occupy that space. The building/space should also support programs that deal with the issues listed above. The space should help families react to military life situations in a positive way. The program may include spaces that promote education and interaction through activities, hobbies, faith and common interests.

THEORETICAL PREMISE

The Base as City:

At a first glance, a base is much like a city. It is self-sustained through its functions and space. A base has a water tower and all the utilities necessary to support the people who not only work but also live on it. A base has a commissary that acts as a convenience store, with food and other necessities. Sometimes there is a fast food and Wal-Mart equivalent store. A base sometimes has options for entertainment such as a bowling alley, movie theatre, library and Enlisted/Officer clubs. A very important facility on every base is a wellness center or gym. Facilities and amenities vary with the size of the base.

Many bases have these things that make it like a city. However, things are very repetitious and the built environment of a base can lack detail and character. It is important to evaluate and compare the purpose of a city, as well as a base community. How do they differ? How are they similar? A city brings people together just as a base does. However, when we take a close look, the details and connections of spaces can make or break the cohesiveness of a place. A place can create a sense of community, or it can hinder it. Cities provide a place for “random chance meetings.” It is encouraging to come in contact and simply see a friend or acquaintance. Squares and plazas have the ability to invite people to meet and linger (Gehl, 2006). Unfortunately, there are cases on and off military bases where sprawl occurs and each building has one function. There is a great need for multi-use spaces that bring people into a central location. The way something is built has the ability to direct where people spend their time.



Community:

The built environment, physical infrastructure, includes more than just buildings. It is a comprehensive look at buildings and the connection between them. Connection may include roads or any network of transportation. Our connection to and from "buildings" includes transportation by car, train, bicycle and foot. In most cases, the car has dominated the means of connection to and from cities. Even within cities we have resorted to transportation in the confinement of an enclosed vehicle. Therefore, cities and communities have resorted to adapt to accommodate the vehicle. Unfortunately, this limits interaction between people. We, as a people, have become too reliant and self-sustained. Limited social interaction can hinder a person's well being. This is especially applicable in a military environment. A social support network is essential in the military world.

"Americans live in towns and cities and spend 90% of their time indoors"
(Wilson, 1998).

THEORETICAL PREMISE

Biology:

Nature is a very important aspect to creating an inviting space. Green spaces create a lively environment. They also provide shade and shelter to make it more comfortable. People will be drawn to a space that creates a sense of shelter and protection. A tree holds a metaphorical image of life. Adding trees and other greenery must also be strategically placed so it complements the space. This can be simply portrayed in the Organic Manifesto principles inspired by Frank Lloyd Wright.

In the organic manifesto, nature is of greatest value to us. We see life in nature; whereas, the industrial age of iron and skyscrapers displayed death to Frank Lloyd Wright. The fundamental value in building with integrity is respect for nature and our surroundings. We are to be stewards for what is provided to us. Man cannot destroy what was created. We now stand in awe of what was created. We sing of nature's beauty.

No sense of horizon and spacious skies can be experienced like that of the great plains of North Dakota. The blue sky floods the space of the plains. How fitting for an Air Force saying to "Cross into the Blue".

*America the Beatiful
by Katherine Lee Bates*

*'O beautiful for spacious
skies,
For amber waves of grain,
For purple mountain majes-
ties
Above the fruited plain!
America! America!
God shed his grace on thee
And crown thy good with
brotherhood"
From sea to shining sea!*

*"God is the great mysterious
motivator of what we call
nature,
and it has often been said by
philosophers, that nature is the will
of God. And I prefer to say that
nature is the only body of God
that we shall ever see."
(Frank Lloyd Wright)*

Summary:

The most important aspect of the theoretical premise is the support of faith and bringing people together to stand upon the hope that it brings. It is after this that everything else falls into place. Community is developed through Faith. Community is refined by the events of living a life in the military. It is based on the need for others and something greater than ourselves. In order to make this possible, a place must be created where people can gather. This is where the design enters the picture and the combination of the built environment and nature support the functions of the people.

It is one thing to be brothers and sisters in arms, but to be brothers and sisters for an eternal glory is even more powerful. Man cannot simply rely on physical weapons to win battles. "...the soldier's heart, the soldier's spirit, the soldier's soul, is everything" (Brinsfield, 2011). The principles stated in the text were retrieved from the New International Version of the Bible. No other text so clearly states examples of such character. It was imperative that the premise for the design be based off of those words. It is all about service and love for one another.

Service and sacrifice are absolutely necessary when living a military life. Every day is about service. The challenges and uncertainty can be filled with hope as a community comes together.

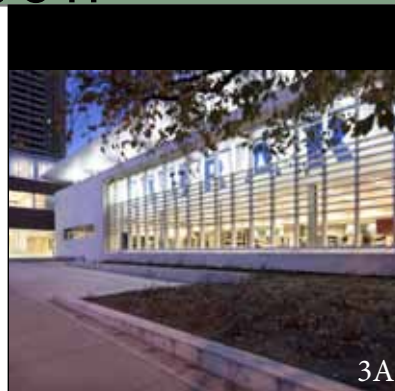
There is a network that must be created for both those who are single and those who have a family. No one person can serve alone. The nature of the military environment was researched through experience and research of the physiological nature that creates a need for community.

There is an inevitable need that emerges in the nature of the military itself. It is through the network of people alone in which this happens. However there is a responsibility for architecture to support such a nature. As stated in the writing about aesthetics, the built environment can have a positive or negative effect. Walls built can either separate or direct people to each other. The nature of architecture can hinder or direct one's view of another. The design will combine nature and aesthetics of the built environment to portray life and support interaction to create a cohesive community.

TYPOTOLOGICAL RESEARCH

Case Study
Introduction

The case studies I chose consisted of community centers and churches. The main focus was identifying the key connections to the buildings' surroundings and how people used the spaces. The entry has been the most important aspect of each study. As seen in the pictures below it begins with the connection with the street. The structure should be engaging. The approach should serve as a gathering place, connecting with the interior. In my research, I also conducted photographic analysis of different places of worship. The following page shows photos of the study of spaces, light and other characteristics. The next page shows a personal photographic case study of multiple churches in Fargo, ND.



ARCHITECTURAL PHOTOGRAPHY





16A

Neighbourhood Church

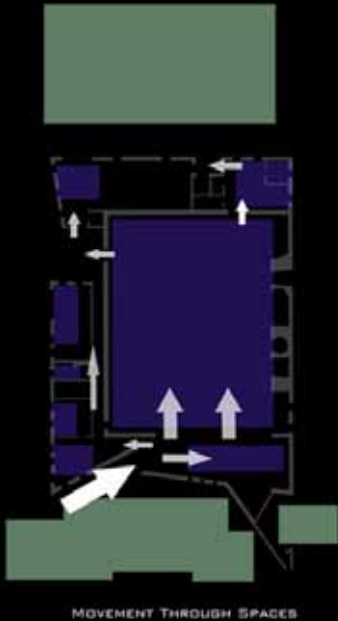


Fig 1.1

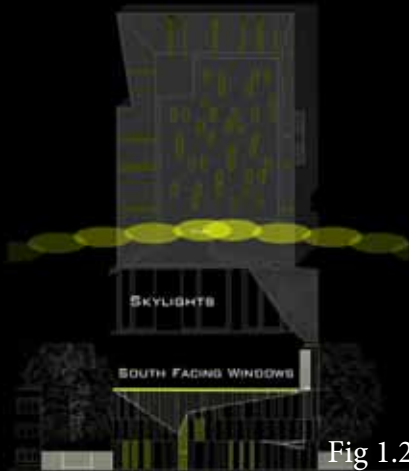


Fig 1.2

This design is centered around community. This church, located in the urban context, is a gathering place for those who are united in faith. The design is very different from the surrounding buildings. Its intent, which is best shown in the interior photo, brings attention to the people through its simple form and white color. The space inside is very flexible, allowing different uses. As seen in the picture below, the design allows for flexible community space at the entrance of the church. The entrance is simple and open to allow for such a gathering. The space also feels protected from the slope of the adjacent wall.



17A

Sesto San Giovanni Italy



Fig 2.1

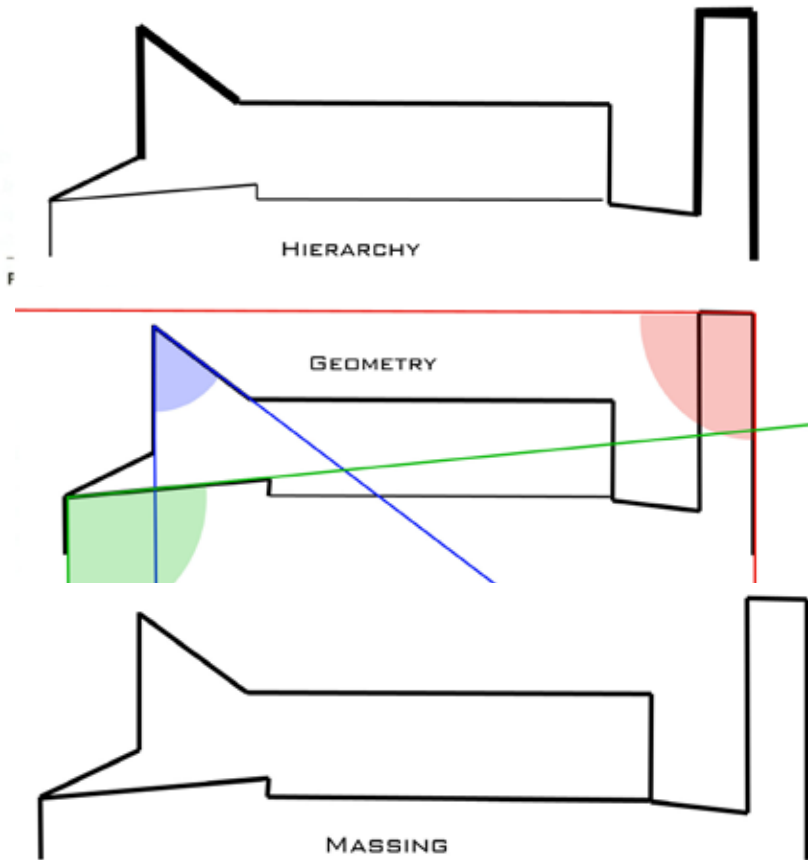


Fig 2.2



Sesto San Giovanni Italy

18A



Wellesley Community Center

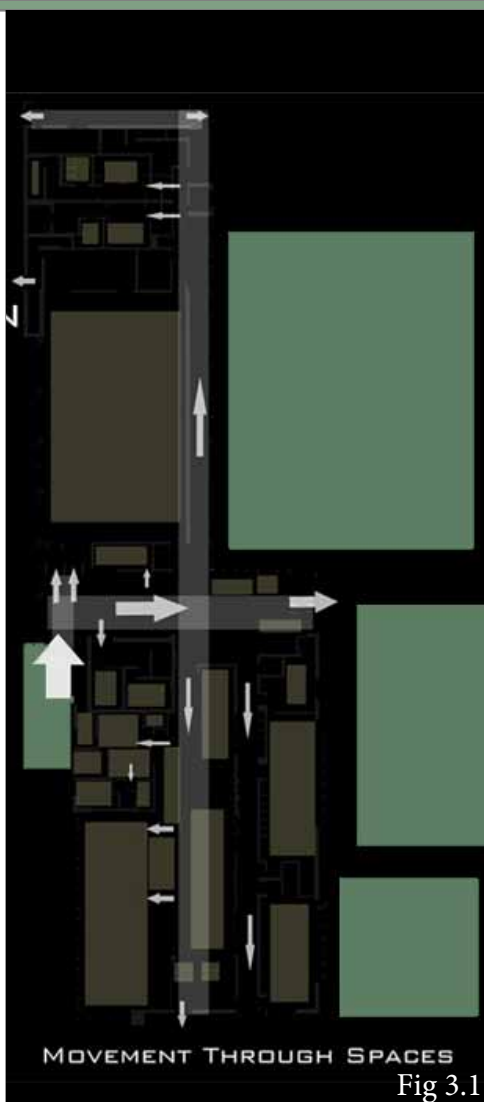


Fig 3.1

This is a great example of an urban center for activity. The community center provides a library, gym, day care and many multi-use rooms for Toronto's most densely populated area. This is a successful project because of the key use of space and interaction with the site. The facility has a very basic linear form for easy circulation. The entry splits the building in half and separates the different functions. The large glass facade creates a visual presentation for the use inside. This effect draws people to the place, increasing the sense of community.



20A

Toronto, Canada

TYPOLOGICAL RESEARCH

34 PROGRAM



STRUCTURE

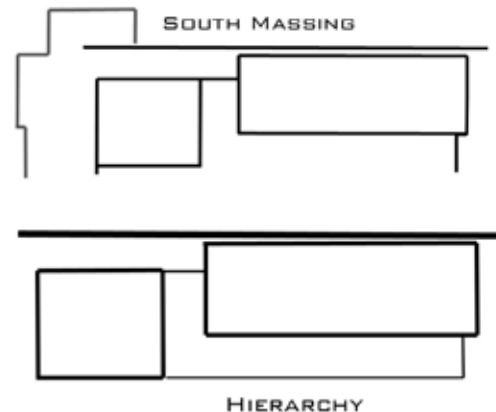
Fig 3.2

PLAN TO ELEVATION RELATIONSHIP



SOUTH ELEVATION

Fig 3.3



GEOMETRY

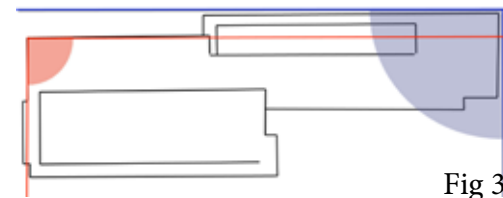


Fig 3.4

Wellesley Community Center



Toronto, Canada

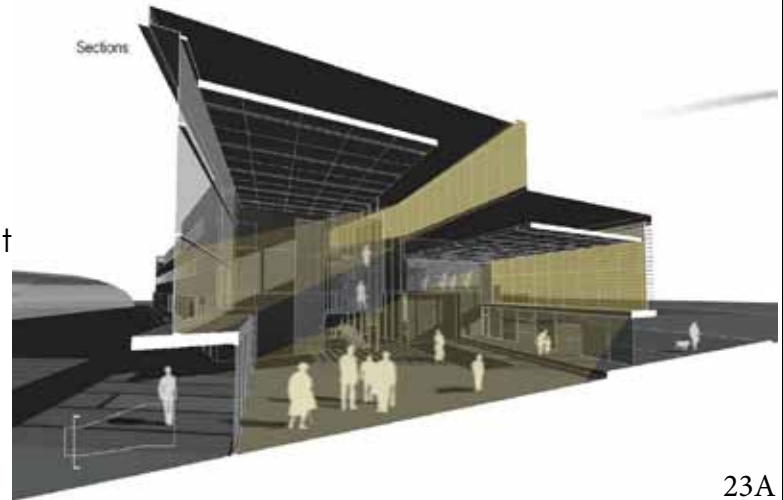
TYPOTOLOGICAL RESEARCH

36 PROGRAM



Community Center

This beautiful community center is sustainable according to LEED Gold certification. Solar gain, natural ventilation, reduction of water use, re-use of building materials, and geothermal energy are key sustainable features. There is a large amount of glass in this project which is one of the most successful aspects of this design. The transparency connects everything in a powerful way. The center sheds light and energy to the surrounding community. It is situated in a key civic area and becomes the area's most lively place. As seen in the movement diagram (below) the long corridor serves as a connection to all of the spaces. Open to the roof, it provides a lit canyon effect with bridges to connect the rooms.



23A



24A

West Vancouver

TYPOTOLOGICAL RESEARCH

38 PROGRAM

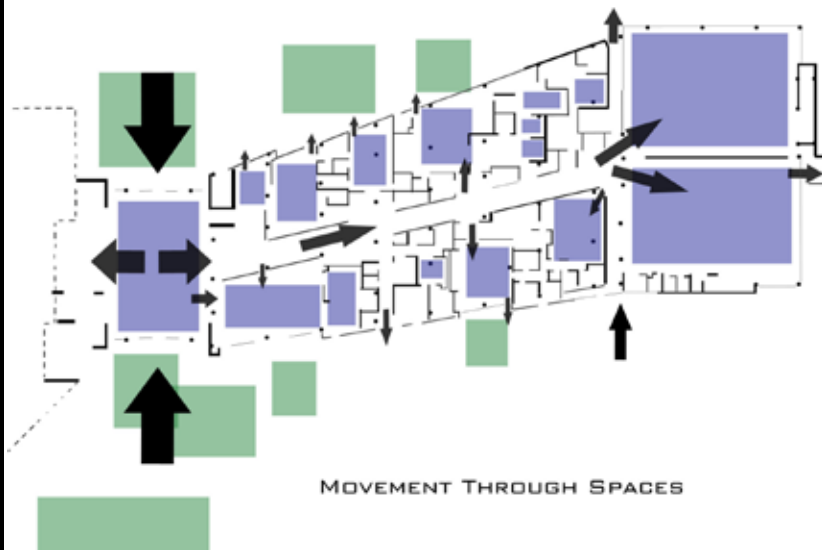


Fig 4.1

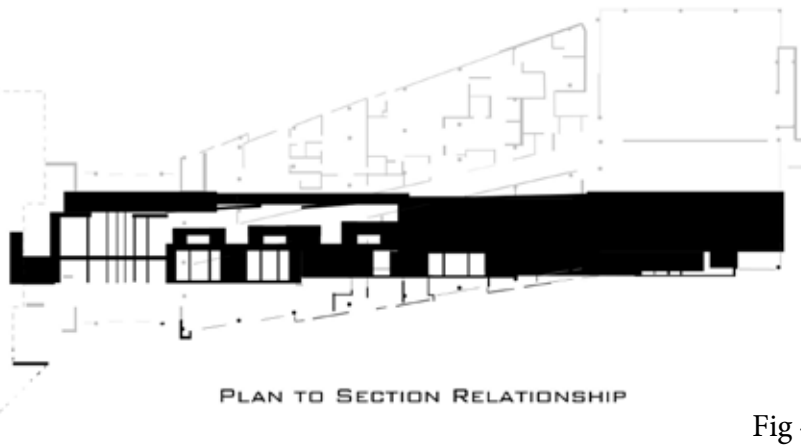


Fig 4.2

Community Center



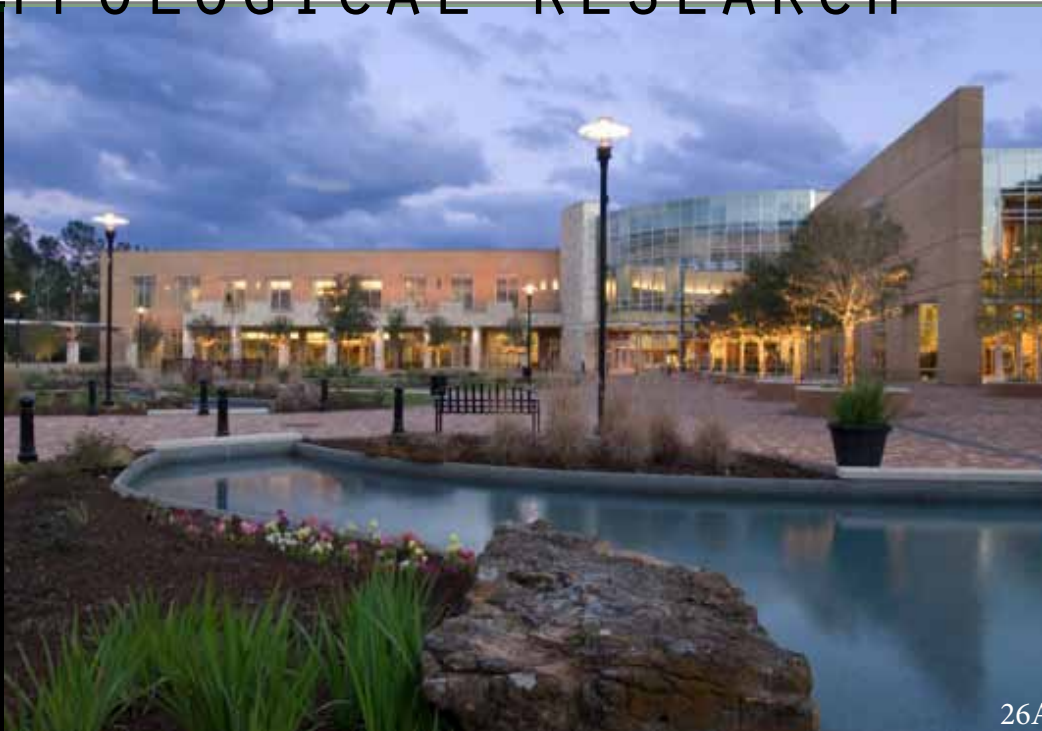
25A

West Vancouver

3P PROGRAM

TYPOTOLOGICAL RESEARCH

40 PROGRAM



26A



27A

"We never felt like they were just trying to create space. They really listened to the heartbeat of who we are and then translated that into our building. They brought a new level of creativity and functionality in church design that you don't find."

--Pastor Chris Ryan, Fellowship of The Woodlands
(Studio Red Architects, 2011)

Fellowship of the Woodland Church

Fellowship of the Woodlands Church campus is located north of Houston, Texas. It is home to a very large community, thousands of people. This a very beautiful project designed by Studio Red Architects. The success of this project can be summed up in the quotation on the previous page. One of the most notable features of this design is the landscaping that makes up the approach to the building. It creates a market street atmosphere with its brick paths and water features. This makes a great gathering space for the climate. The approach leads to a large glass facade entry and lobby space. This area serves as the pivot point and center for activity for the building.

The lobby contains a coffee shop, bookstore and meeting spaces. The east wing is a large children ministry center, and to the west is the huge worship center. Through out the building there are five multipurpose auditoriums. The important aspect of this design is the vast accommodations it offers to fully support a "community". The project has a very successful master plan with well supporting features (Studio Red Architects, 2011).

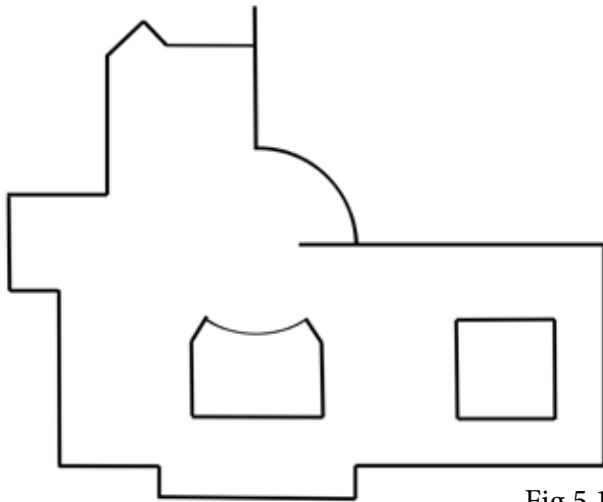


Fig 5.1

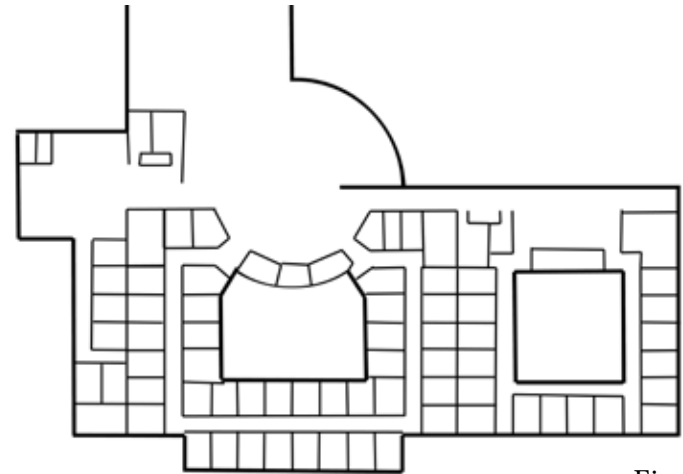


Fig 5.2

Woodland, Texas



28A



Fellowship of the Woodland Church

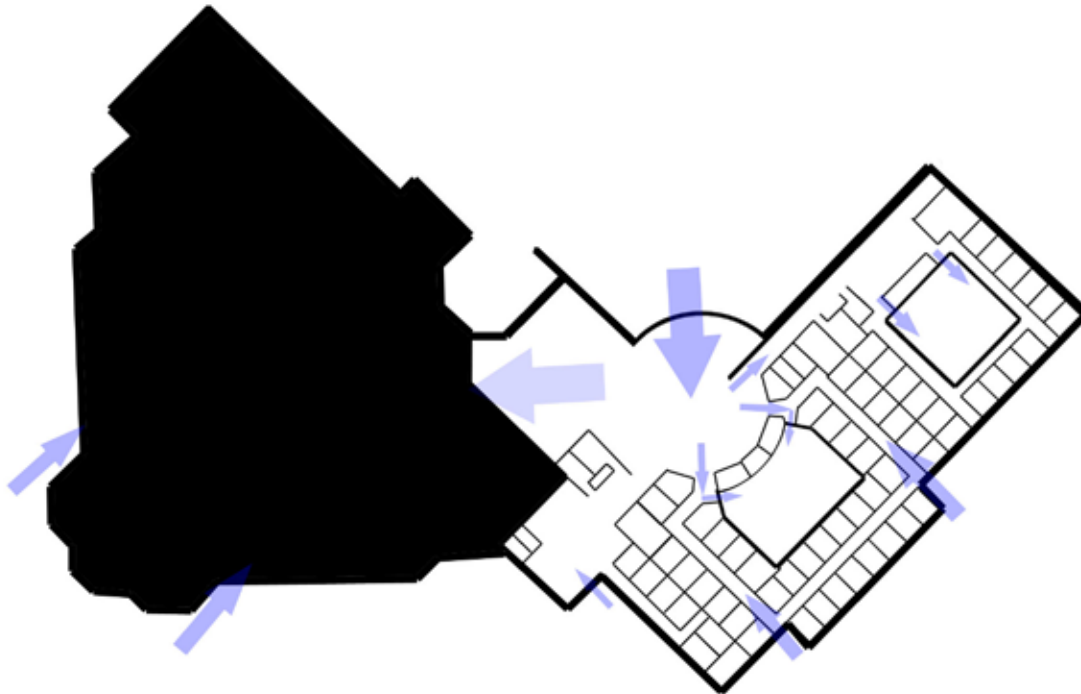
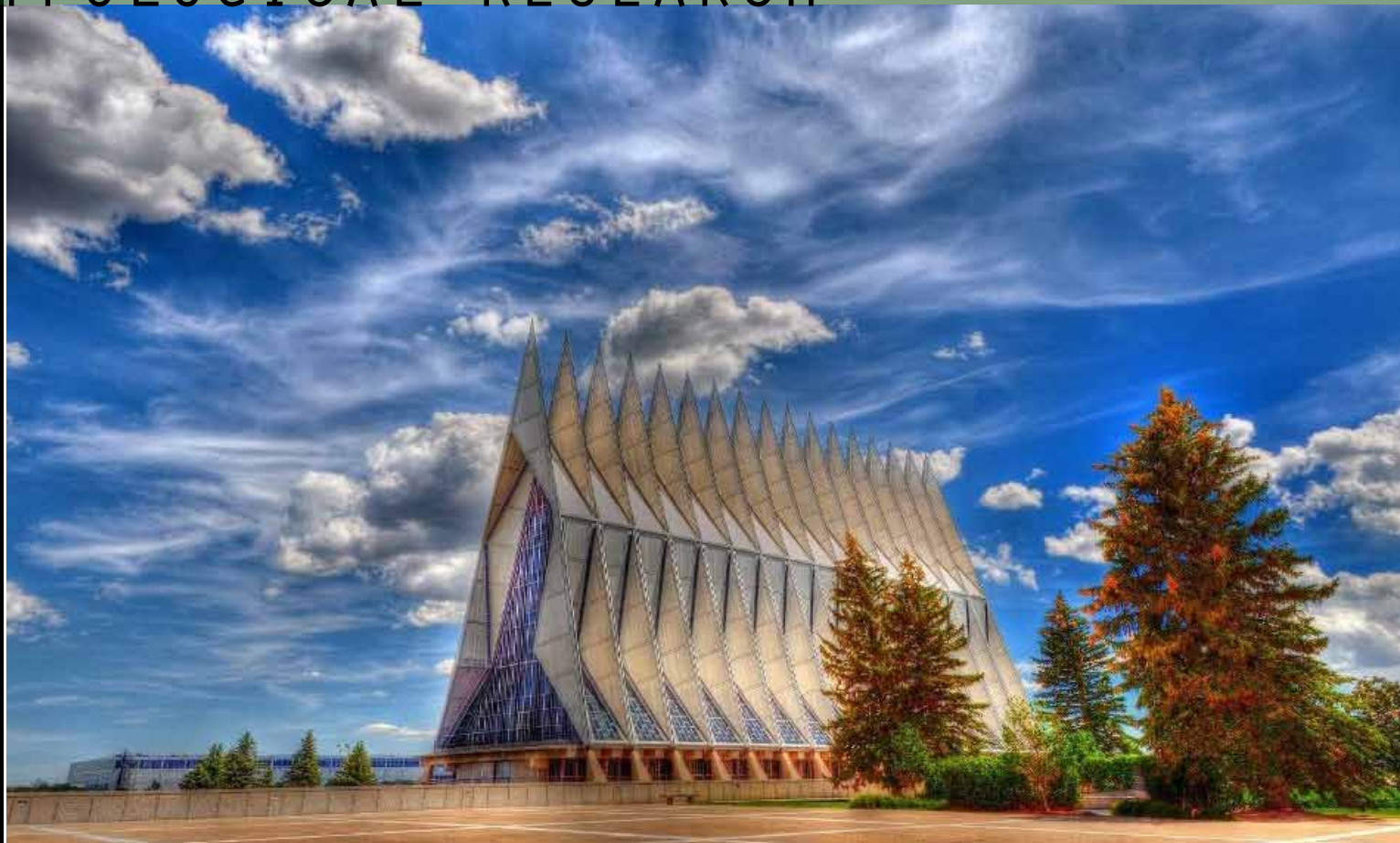


Fig 5.3

Woodland, Texas

TYPOLOGICAL RESEARCH

PROGRAM



Architect: Walter Netsch of Skidmore, Owings, & Merrill

Location: El Paso County, Colorado

Designed: 1954-1957

Built: 1956-1962

29A

Air Force Academy Chapel



30A



31A



The Air Force Academy is located in El Paso County Colorado. The academy is the most intense commissioning program to enter into the Air Force ranks as an Officer. The Air Force academy is very diverse. The cadet chapel was created to accommodate the spiritual needs of the cadets and staff. Designed by SOM the project was completed in 1962 and cost \$3.5 million.

The unique characteristic of the chapel is its multi-faith nature. The Air Force is faith neutral and accommodates all faiths. Designed on the demographics of the base, the largest space is the Protestant chapel that seats 1200 people.

Its nave towers 92ft high. It is composed of 100 tetrahedrons with stain glass in between. The stain glass transitions from dark to light to represent the light of God. Each worship space is unique to its faith practice. Another unique feature of the Protestant chapel is the reredos containing pieces of precious Colorado gems. In addition to the Protestant chapel is the Catholic and Jewish spaces. The building also contains a Buddhist Chapel and two multi-faith rooms for other faiths. A new addition to the chapel is an outdoor worship space for earth centered faiths (Air Force Academy, 2011).

Colorado Springs, Colorado

TYPOLOGICAL RESEARCH

46 PROGRAM

Upper Level:
- Protestant Chapel

Lower Level:
- Catholic Chapel
- Buddhist Temple
- Jewish Chapel
- All faiths room

Basement Level:
- All faiths room
- Meeting Rooms

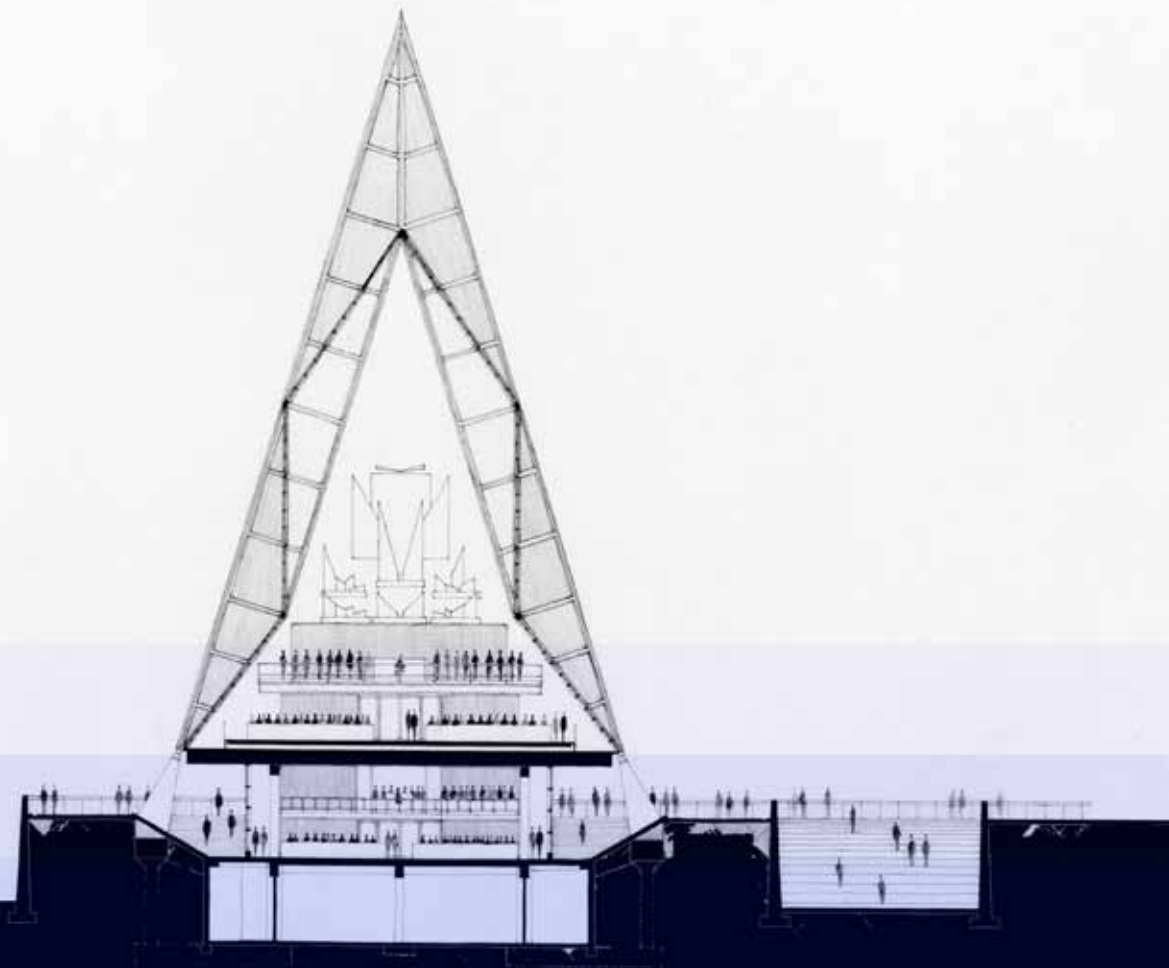
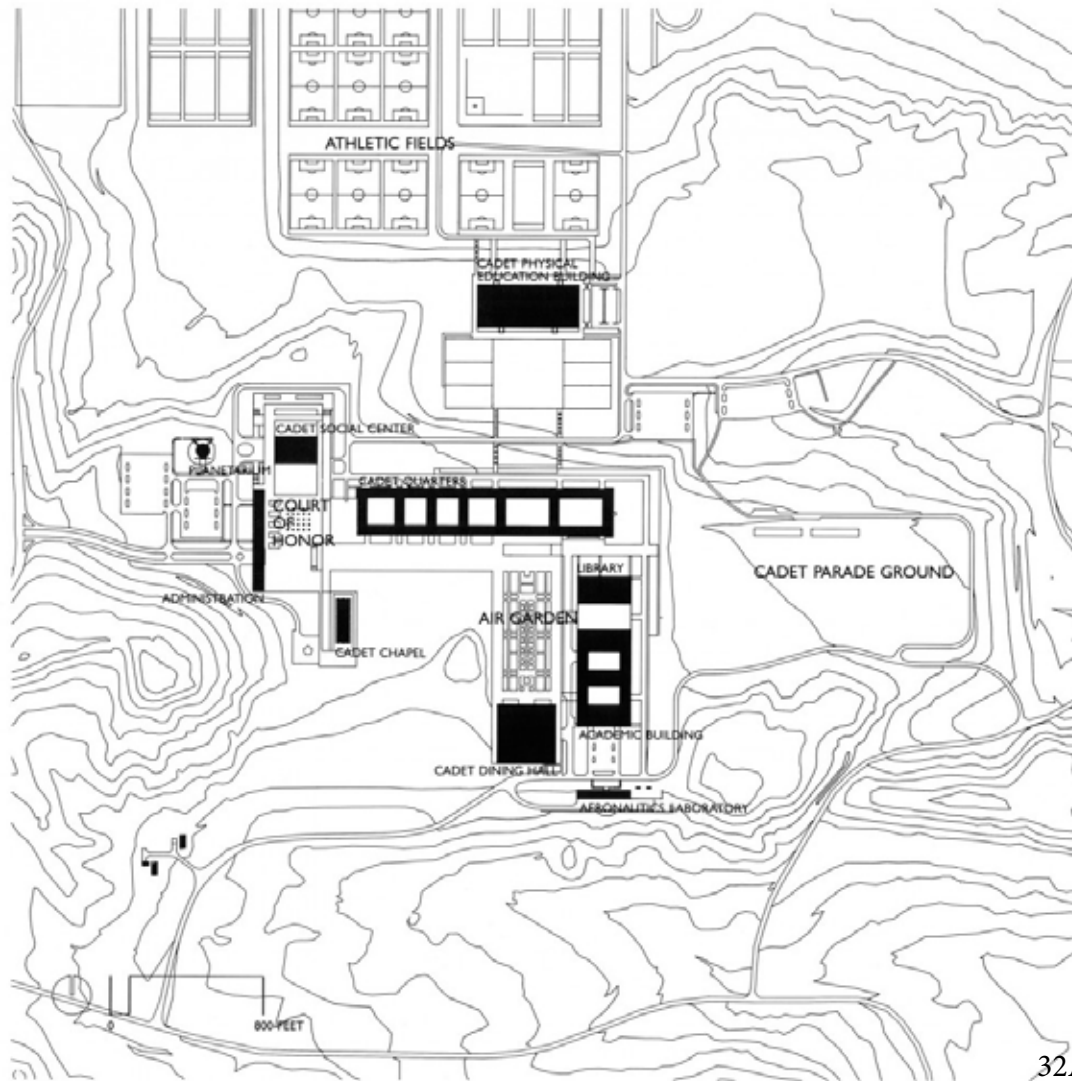


Fig 5.4

Air Force Academy Chapel



32A

Colorado Springs, Colorado

47 PROGRAM

TYPOLOGICAL RESEARCH

Case Studies Conclusion:

Common characteristics & effect on theoretical premise:

Spaces here are all about bringing people together for a common purpose. That is the function of all buildings to some extent. These are the signature examples of social gathering spaces. Common characteristics include: open lively places, strong connection to surroundings, simple form and circulation.

Uncommon characteristics & effect on theoretical premise:

The biggest uncommon characteristic was form and material. Each place utilized a different technique for personifying the way it looked.

Effect of perceived underlying conceptual ideas:

The main conceptual idea was to bring life and energy to a place. In order to accomplish a successful gathering place you must induce an energy and light.

Effect of different sites:

All of the projects were in an urban context. They all had a strong connection to the street. the biggest difference was the placement of windows and design for sustainability.

Effect of culture and social context:

This topic is shown in a strong way through the Neighbourhood Church in Italy. The Italian lifestyle is focused on family and social gatherings. The church is designed in a very simple way to accomplish just that. Even more so the Air Force academy provides a unique opportunity to meet multiple faith needs in one place. This allows the Air Force to combine facilities, in doing so, bringing people together.

HISTORICAL CONTEXT

History of Region Minot

Founded in 1887
(Construction of Great Northern
Railway)

Known as the
“Magic City”

Current Facts:

- 13 miles north of Minot
- 5000 acres
- Work Force 6,000+ military members and civilian employees
- The base population totals approximately 13,000

(5th Bomb Wing Public Affairs Office, 2009)

Minot was founded in response to the “Great Northern Railway,” named after Henry D. Minot, the vice-president of the Eastern Minnesota Railway Company. The town then began rapid growth, about 5,000 within five months, and became known as the “Magic City”.

“However these people were mostly transient boomers” (Brown, n.d.) and in the beginning years, the town was a pretty rough place. “At this time Minot has 3 or 4 decent Catholics in town, the rest were gamblers, saloon keepers, escaped jail birds, men gone bankrupt in other places, men run away from their wives, and wives run away from their husbands” (Brown, n.d.). At the tail end of the population boom in the 1920s, Minot became known as the “crime capital of ND” due to the Prohibition and Al Capone’s smuggling operations. The city saw many ups and downs for the years following.

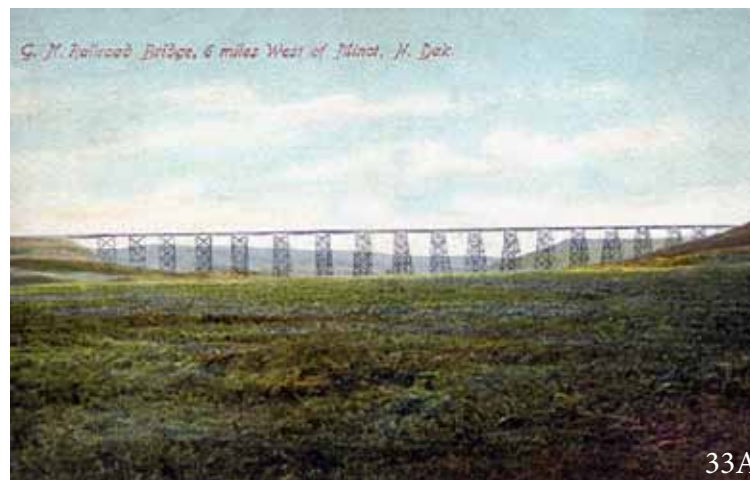
HISTORICAL CONTEXT

Some major developments grew as the result of transportation expansion, the meeting of three highways in 1928 and the expansion of railroad lines in 1929. As a result, the 1927-28 City Director boasted: "No city of its size in the United States has as large a trade territory, undisputed by other cities of comparable size within the territory" (Brown, n.d.). In lieu of all the corruption, the Lutheran church helped expand the growth and development as a result of opening a hospital. The "Northwest Fair" brought economy and growth in 1922. In 1928, Minot Airport emerged with the opening of the municipal field, which became the "port of Minot in 1929" due to the efforts of Sidney Baldwin. With these developments, as well as schools and other organizations, the population rose from 10,476 in 1920 to 16,099 in 1930. The late 1930s brought more industrial and infrastructure advancements of streets and facilities.

"In the bootlegging era of the 1920s, Minot built new churches, added another hospital, and encouraged educational and cultural activities. By 1940 the followers of vice and virtues were organizing for a final battle under different community conditions..." (Brown, n.d.)

"According to the 2010 Census, the city of Minot is home to the majority of county with a population of just over 40,000 residents—a 12 percent increase from the 2000 Census"

(FEMA, 2011).



History of Minot AFB

Minot AFB came into existence in 1957 in response to the stirring of the Cold War. "The first permanent Strategic Air Command unit assigned to Minot AFB was the 4136th Strategic Wing in September 1958" (Minot Air Force Base) followed by a refueling squadron. In 1961, the base saw its main mission, the B-52 Stratofortress, also known as the "Peace Persuader". That same year, the base became home to the "Minuteman I" Intercontinental Ballistic Missile (ICBM). The base then saw a few replacements of units as well as advancements in weapons. 1980 brought a spur in operation due to the development of the Strategic Projection Force by the 57th Air Division. During the 1990s, Minot AFB held great success in deploying aircraft and personnel to the Middle East during Operation DESERT STORM. After the Cold War ended, the 57th was replaced by the 5th Bomb Wing. The 91st Missile Wing remains at the base under the Air Force Global Strike Command, as the 57th is under the Air Combat Command.

Operation Enduring Freedom: Flying from a forward operating location, bomber crews attacked strategic targets in Afghanistan to topple the Taliban regime. Minot's bombers, combined with other Air Force bombers and attack aircraft, flew approximately 17,500 combat missions over Afghanistan, dropping more than 9,550 tons of munitions to damage or destroy roughly 75 percent of all planned targets (Minot Air Force Base).

In 2003, During Operation Iraqi Freedom the wing deployed over 500 people and a dozen B-52s flying more than 120 combat missions and the first time in combat history, a 5th BW bomber crew used a Litening II targeting pod to strike targets at an Iraqi airfield April 11, 2003 (Minot Air Force Base).

"Minot AFB has undergone many changes throughout the years, but one thing remains constant -- Team Minot spirit continues to reign, re-emphasizing the truth that "Only the Best Come North." (Minot Air Force Base)

HISTORICAL CONTEXT

Context of Base Planning

Example from past:

Air Force Architectural Compatibility 1987 vs 2007

1987 Bulletin

- *Purpose to improve working and living environments focusing on both function and appearance
- Mentions "regional influence" to add more comfortable/appropriate environment
- "The quality of life on Air Force bases is closely related to the physical environment created for people."
- Two point of views 1) compatibility and 2) awareness.
- If guidelines become too rigid the base can become a sterile environment
- There is a large emphasis on "unity" and regional "themes"
- Good attention to human "scale"
- Create links between buildings and transition between uses (car to walking)

Overall this bulletin has some great basic fundamental points to use for architectural compatibility. These points follow good architectural design applicable to all time

periods. Major points include scaling architecture to the human level, creating distinct entrances and attention to context at all levels site to region. Creating human scale and spaces that accommodate the person are given importance. Case studies are used to give examples of both good and bad design features to learn from. The most important point mentioned was that the physical environment makes a large impact on "quality of life" on a base.

This guide is a great tool to increase awareness and develop a process for design. Although, this "guide" also states that if guidelines become too rigid a design can become sterile. This is a very good point, because too often a place becomes exceedingly uniform and architectural quality is lost. This bulletin also gives credit to architecture as being the "art" of designing a building.

"There is a traditional belief that the physical environment can have a positive impact on the social environment of the city - which the way to an ideal social environment in the city is through the creation of an appropriate physical environment" (Catanese and Snyder).

1987 Design Elements

1. Buildings

- a. Architectural Style/**Theme**
- b. **Scale**
- c. **Form**

2. Outdoor Spaces

- a. Site Selection
- b. Site Design
- c. Outdoor Spaces
- d. **Landscape Design**
- e. Fences*
- f. Exterior Lighting*
- g. Signs*

3. Infrastructure

- a. Circulation*
- b. Utility

4. **Regional and Base wide Considerations**

5. Base Systems & Use Areas

2007 Design Elements

1. Elements

- a. Theme
- b. Scale
- c. Form
- d. Mass
- e. Articulation
- f. Color*
- g. Fenestration*
- h. Detail

2. Patterns

3. Districts

- a. Visual Character
 - i. Landscape
 - ii. Urban/Rural Context
 - iii. Climate*
 - iv. Regional Architectural character
 - v. **Character of Installation**

Bold denotes repeating Elements & * denotes unique

HISTORICAL CONTEXT

2007 Architectural Compatibility Guide

First and foremost, architectural compatibility is design before it can be put into the Air Force context. The design can be broken into levels of visual categories. Three levels of visual consideration include elements, patterns and districts. Basic visual elements include theme, scale, form, mass, articulation, color, fenestration and detail. An important aspect in the 2007 guide is the process beyond design principles. Key elements include the people who are involved in the design process and the means to which it is implemented (Architectural Compatibility Guide, 2007).

How has the Air Force advanced in terms of design?

A big difference and addition in the 2007 guide is consideration of funds, policy and technology. As the years progress, these issues become more complex. For one, we face a different economy which limits what we can and cannot do to make a building more effective. Policy has the ability to limit or expand opportunity with design and one must be vigilant in supporting policies for beneficial

design. With more technology comes more opportunity. It is imperative that we utilize current technology, as available, to enhance design, especially in the area of sustainability, which will be discussed in detail later.

What principles stay the same?

Basic design principles of form and space will always stay the same. The basic design process of observing, evaluating and executing will for the most part stay the same as well.

"Architectural compatibility results from designing and building facilities in harmony with their natural and man-made surroundings and environment" (Architectural Compatibility Guide, 2007). Attention must be paid to both form and function. As Frank Lloyd Wright once said,

"Form follows function - that has been misunderstood. Form and function should be one, joined in a spiritual union" (BrainyQuote.com).

The Military and Energy Use:

The military has a great need to utilize resources necessary to complete the mission. This comes at a great price. "The truth is that the U.S. military is the single largest consumer of energy in the world" (Energy Bulletin, 2007). The need is great, especially for the Air Force. Aircraft require an extremely large amount of fuel to operate and sustain missions.

How can the Air Force offset this energy use?

From a military perspective, "sustainability" is the capacity to continue the mission without compromise. It is the ability to operate into the future without decline - either in the mission or the natural and man-made systems that support it (Karbusz, 2007).

This means the Air Force must make an effort to be sustainable in whatever areas possible. The Air Force does not have the technology to replace jet fuel for aircraft yet. The next largest source of energy consumption, after equipment, is through built infrastructure. Infrastructures, such as buildings, leave a large environmental footprint due to their size and function.

Unlike highly moveable equipment, buildings have the potential to use minimal energy through utilizing natural energy in its direct form. For example, utilizing the sun's energy for heating is one simple way to reduce heating costs. A three-step approach can be used in the area of sustainable design. The first tier, the largest impact, is the Basic building design. This consists of aspects such as the location or site, building form, windows, and lighting. The next largest imprint is the use of passive systems, such as heating, cooling and lighting strategies. If designed correctly the third tier can be eliminated or minimized in the use of mechanical equipment (Lechner, 2009).

HISTORICAL CONTEXT

The Air Force is taking leaps and bounds to create sustainable buildings. In the FY12, all buildings are to pursue Leadership in Energy and Environmental Design (LEED) qualifications. A great example is the Air Force Weather Agency Headquarters. "The building was dedicated on Aug. 22, 2008, and is the first facility in the Air Force to earn a Leadership in Energy and Environmental Design gold rating by the U.S. Green Building Council" (55th Wing Public Affairs). The building achieves this through many different strategies. For example, "Preferred parking areas are provided for eco-friendly vehicles, and bike racks and shower facilities encourage building users to bike to work" (55th Wing Public Affairs). This is a non-traditional example that shows sustainable design is more than just green roofs. Creating more efficient HVAC systems, such as a flexible air distribution system, is another strategy used in this project. A huge reduction of waste was the result of utilizing an abandoned runway for a parking lot.

This is just one example of the efforts by the Air Force. It is not just the Air Force, but the whole military that is starting a movement to sustainable design. "Starting in 2013, all new buildings on military bases must attain standards set by the U.S. Green Building Council for LEED Silver" (Green Building News, 2010).



Air Force Weather Agency Headquarters
LEED Gold Certified

Another example is the combined headquarters for Forces Command and U.S. Army Reserve Command. "The 600,000-square-foot, \$302 million project will open in summer 2011" (Green Building News, 2010). This building will be a LEED silver project.

Design strategies include using recycled material, passive cooling/lighting and using minimal environmentally impacting material. A facility of its size has the potential to consume a great amount of energy.

This movement towards LEED certification will greatly reduce the amount of energy used by the military as a whole. The military has hundreds of military bases around the world. The movement towards all military building projects being LEED certified will minimize the impact footprint left behind by the military. The military has some of the leading technology in the world. There will be many opportunities to apply that technology to sustainable design.



Headquarters for Forces Command and U.S. Army Reserve Command.

GOALS FOR THESIS

Goals for Thesis:

Personal

My personal goals for this project are to hold true to my values. The values based off of the Air Force sum up my personal goals well.

“Integrity First”

I hope to portray true integrity in my work and the way I accomplish it. Fortright and honest work is of great value to me. I must be true to myself in what I am doing, by portraying what I value most. That can be summed up in “God, Family, and Country”. First, I am faithful to my God. My Faith is of utmost importance to me without God I am nothing. He is my source of strength to persevere through this project as He has led me to do so in past architecture projects. I am recently married and have a wonderful privilege to serve my wife Carly. My goal is to spend adequate time with her to maintain a healthy relationship. I also have an obligation to my country. My goal is to serve it and the people who occupy it. My primary goal is to uphold my integrity through my actions and honor God in my work.

“Service before Self”

This project is not for me. Architecture should never be for one’s own personal pleasure. This project is to serve others in whatever way possible. I am about to embark on a great journey to put my words into action.

“Excellence In All We Do”

I will never create the perfect project. I can never be a perfect person. It will be my goal to apply myself to the utmost of my ability. I hope to focus my time on this project and put forth my best effort.

*These values supersede any other goals.

Academic

I am fulfilling these specific requirements to graduate with a Masters in Architecture. I have and never will be able to “master architecture”, but my hope and goal is to ALWAYS be learning and developing my skills. The Architecture program has taught me so much more than I would have thought. Much of it does not even relate to architecture. But that is alright, because it is all about the process and not always the end product, at least in school. My goal is to stay on task and on schedule with the timeline I have set forth. I also hope to gain and share knowledge with other students.

Professional

I am contracted to commission as a 2nd Lt in the United States Air Force as a General Civil Engineer in May 2012. My goal is to learn as much as I can to prepare myself to be effective in that position. First, in the area of leadership and character as I will be an officer before a Civil Engineer. Specifically, my goal is to advance my communication skills. Next, I hope to become more familiar with the duties I will retain in the areas of Civil Engineering. This includes becoming more knowledgeable in the area of project management, programming and any technical skills I may need. In doing all this, my goal is to become more effective as a leader in the professional world.

SITE ANALYSIS

6P PROGRAM

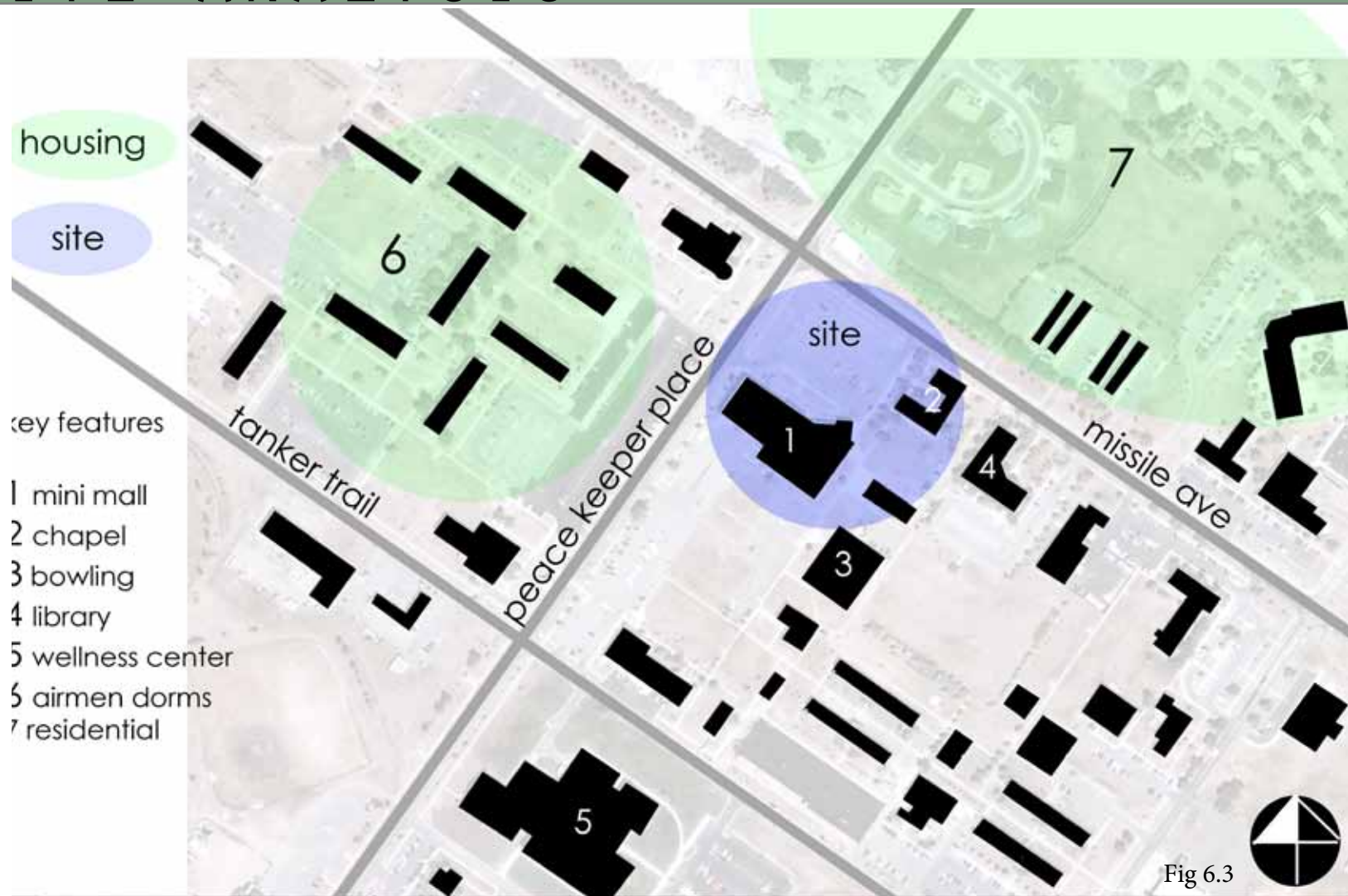


Fig 6.1



Fig 6.2

SITE ANALYSIS



Quick Details:

Light Quality: exposed

Vegetation: sparse

Water features: none

Wind: exposed to wind

Distress: site maintained

Vehicular Traffic: dense

Pedestrian Traffic: sparse

Topography: Flat

Site Narrative

General observations of the site:

There are a few good gestures happening as you enter the base. The residential zone is to your right as you head NW on the main road. Separating the road and housing units is a bike/walking path and a line of tall coniferous trees providing protection. The civic and work zones, located on the opposite side of the road, lack trees and detail. Most of the buildings are a reddish brown masonry with few windows. Most of the buildings are separated and set back at different distances. Parking lots take up a majority of the space.

Site and community:

The site lies fairly central to the base. The residential zone lies just north, separating the site and residential area is the main road (Missile Ave) which cuts through the base and leads to the commissary and a large park. To the south is the civic area with most of service buildings. There are a few work buildings and offices nearby. The site serves as a connection between the work place and living space, simply through its location. The intersection where it lies is the busiest on the whole base. The site receives most of the traffic. To the west lies the parking lot to the airmen dormitories. The site is a place that you can walk to easily.

SITE ANALYSIS

on site: chapel, mini-mall

views of site from nw



views west and north of site from se





40A



41A



42A



43A

66 PROGRAM SITE ANALYSIS

Commissary:

The commissary is an essential gathering place for every base. The commissary carries most commodities a person needs. Most commissaries, including this one, are designed as a mini-mall with a grocery, department, uniform and health store. Many have a food court and barber attached as well. This can often become a busy place, especially during the weekdays and evenings. The inside is fairly open and provides adequate space for circulation. There is a lot of open space surrounding the facility, including large parking lots to the north. A nice aspect of the surrounding area is the network of bike/walking paths. Paths lie on both sides of the main road leading to the commissary. There is a lack of detail, however, along most of the paths. One path hugs the road with no separation between it and the road.

commissary



SITE ANALYSIS

Airman Dorms & Living Space:

As you approach the dorms, they fit the basic red/brown brick scheme. There is little variation and detail in the buildings. The buildings are more than 30 years old. New dorms can be seen in the new base page.

Many improvements can be seen at first glance. The airmen dorms feel much like a college campus. The dorms are located just northwest of the site. The facilities are aged and seem cramped. Airman Knipp stated "many airmen had to bring in their own heaters because the HVAC systems are aged" (N. Knipp, personal communication, November 25, 2011). There is a fair amount of tree cover directly surrounding the dorms. However, the area lacks protection from the NW wind. The entrance has a lack of protection, as seen in the pictures below. The building seems somewhat cramped from the outside, as well as the inside.

The housing located on the northern half of the base has more variation of style and provides more open space. There is an adequate amount of paths for biking and walking surrounding the neighborhood. The

airmen dorms



49A



50A



51A



52A

Wellness Center

The wellness center is located just a block southwest of the site. It is one of the newer buildings on base. There are many good characteristics of this place. Architecturally, it has more character and variation of material than other surrounding buildings. It is an inviting place with bright colors on the inside. There is a central corridor/atrium that cuts straight through the building for easy circulation. Beyond that, the other spaces are somewhat closed off and more private. There are different rooms for different types of equipment. One of the great aspects of this building is a room with exercise equipment and a play area in front of it, so parents can watch their kids as they work out. The surrounding site could use more trees and planting to liven up the area. The space outside is fairly unprotected. The wellness center will be an important link to the project, as it is an important aspect to bringing people together. There will be a strong connection between the spiritual center and this wellness center.

wellness center



53A



55A



57A



54A



56A



58A

new Minot

The recent flood of Minot has created a need for a rebuilding of the city. The city is seeing a shift in demographics due to the oil boom nearby. As the city expands the character of Minot will see a great shift.

Material

The new material, seen in the images, is the new face of Minot. This is a move from the aged classic, brown-red brick seen on many of the buildings in downtown and also on the base.



59A



60A

73P PROGRAM SITE ANALYSIS

average precipitation

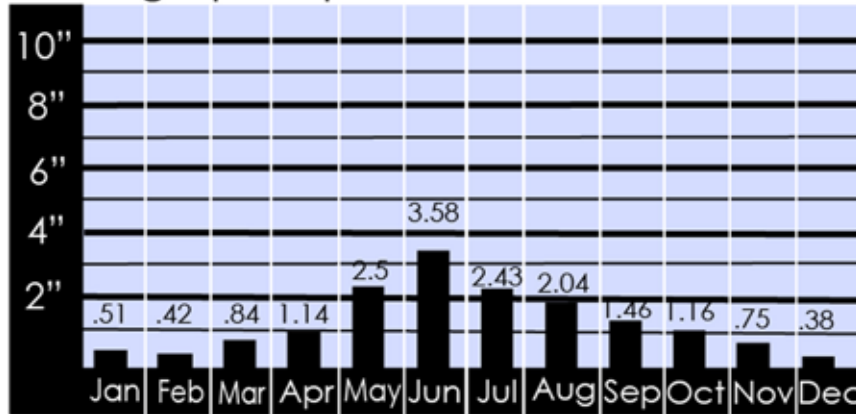


Fig 7.1

temperatures

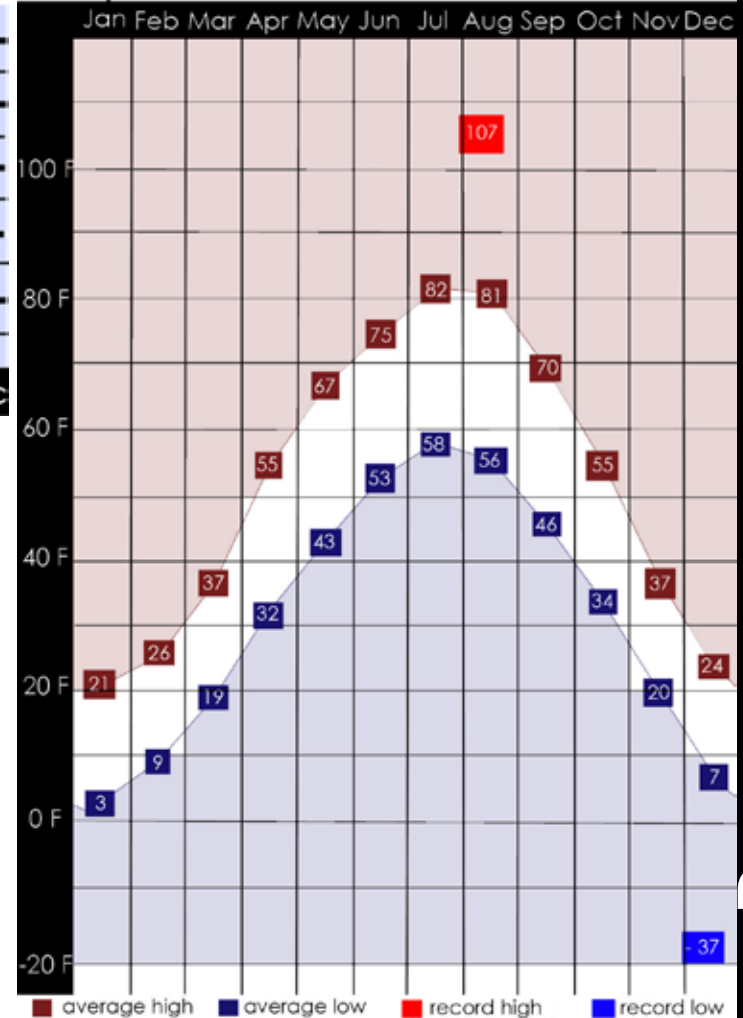


Fig 7.2

SITE ANALYSIS

wind rose

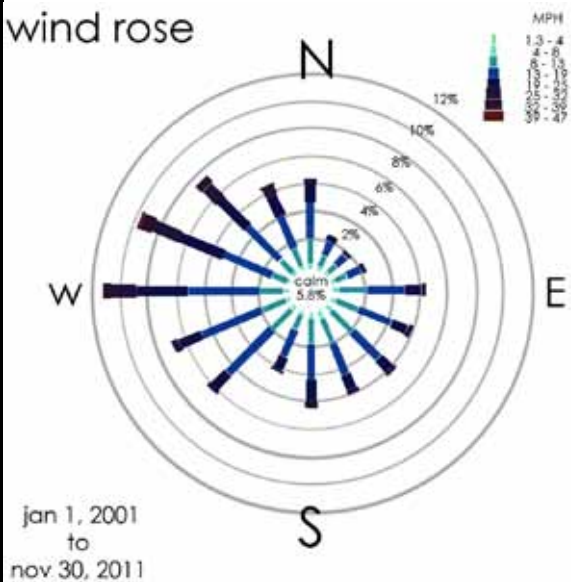


Fig 7.3

sun path

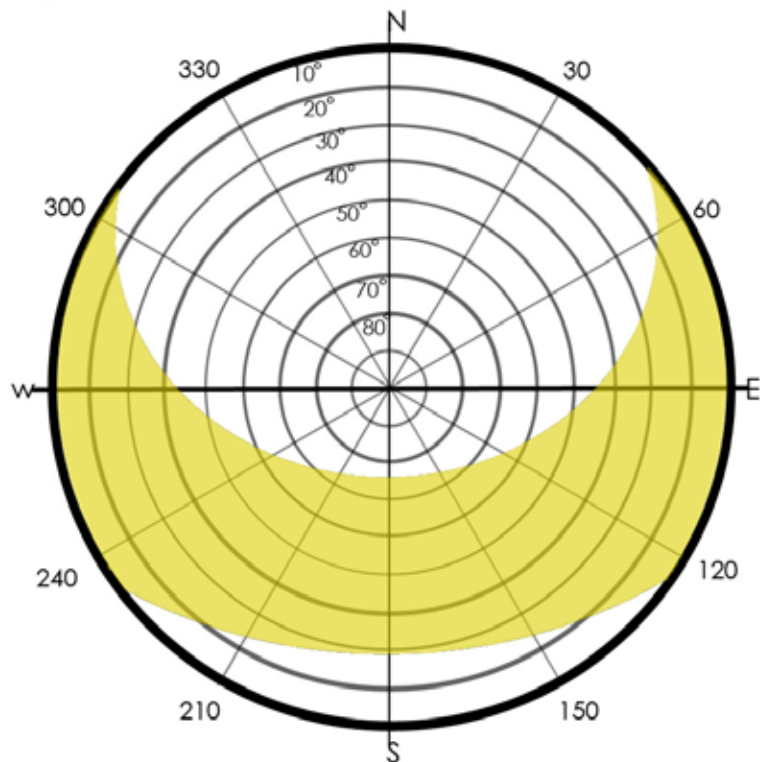


Fig 7.4

PROGRAMMATIC REQUIREMENTS

Level of Interaction																					
Essential	Desirable	Not Needed																			
			Courtyard	Entrance/Lobby	Auditorium/Sanctuary	Music Room	Fellowship Hall	Flex Classrooms	Kitchen	Gym	Youth Center	Daycare	Spiritual Resource Center	Coffee Shop	Café	Office Space	Public Restrooms	Private Restrooms	Storage	Mechanical	Parking
Courtyard																					
Entrance/Lobby																					
Auditorium/Sanctuary																					
Music Room																					
Fellowship Hall																					
Flex Classrooms																					
Kitchen																					
Gym																					
Youth Center																					
Daycare																					
Spiritual Resource Center																					
Coffee Shop																					
Café																					
Office Space																					
Public Restrooms																					
Private Restrooms																					
Storage																					
Mechanical																					
Parking																					

Fig 7.5

PROGRAMMATIC REQUIREMENTS

PROGRAM

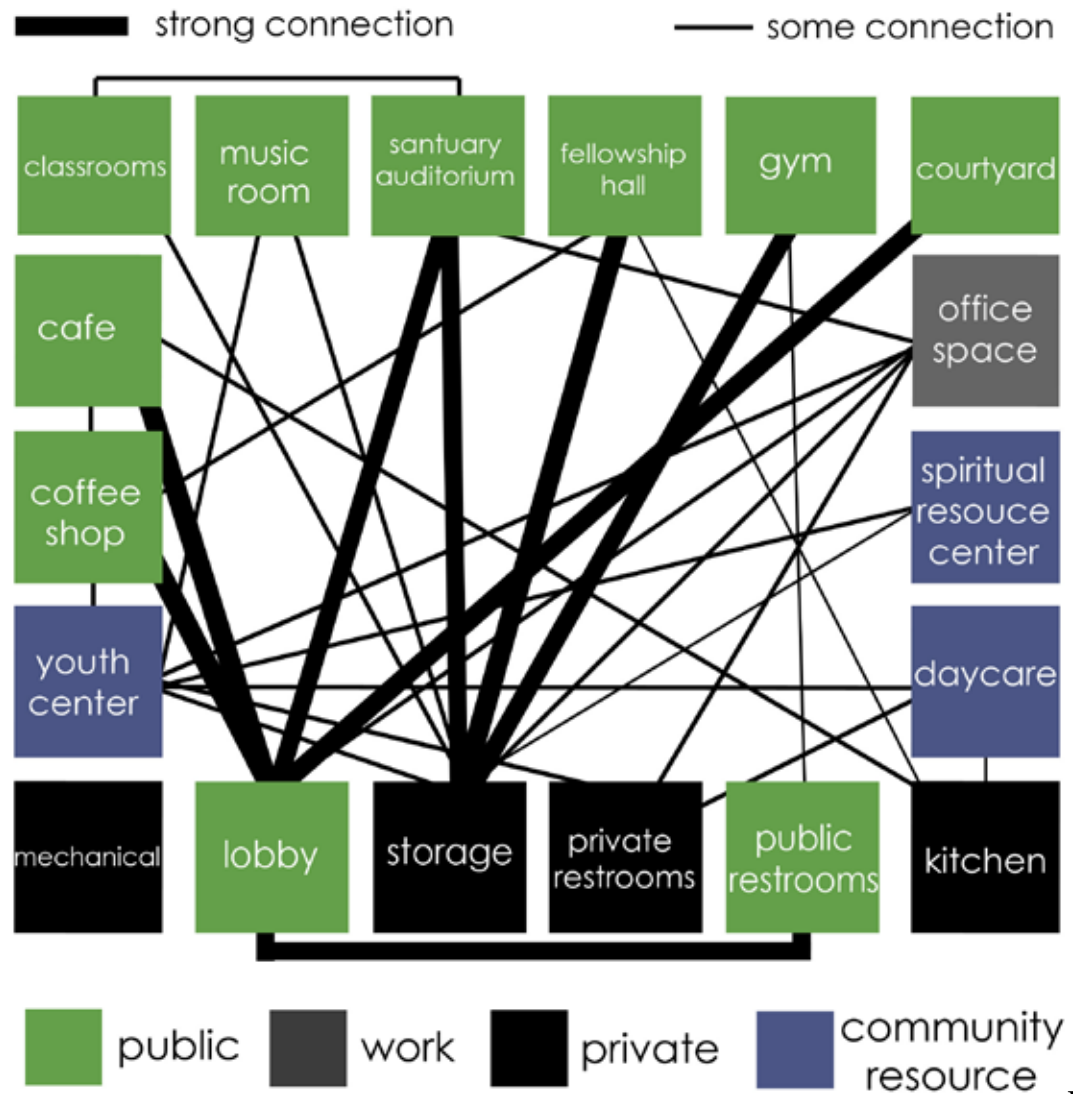


Fig 7.6

WORSHIP CENTER PROGRAM (Space Allocations) <i>Minot AFB Chapel</i>		
SPACE	(NSF)	DETAILS
Worship Center		
Sanctuary		(Seats 1000)
Chancel	2000	Flexible-Interchangeable space
Nave	13000	flexible spacing
Multi Faith Worship Room (x2)	1500	flexible + small storage
Blessed Sacrament	300	neutral prep area
Sacristy	500	
Baptistry	250	Baptismal Font & small pool
Choir Room	500	
Choir Changing Room	250	
Brides Room	200	
Prayer Rooms	300	Small private rooms for different faiths
Cry Room	200	
Multi-Media Room	250	(2nd Level)
Storage	600	
TOTAL WORSHIP	19850	
Public Space		
Narthex/ Lobby	2000	large open space, seating, tables, planters
Coat Room	375	
TOTAL PUBLIC	2375	
Specialty		
Coffee Shop	125	connected to narthex
Café	175	connected to narthex
TOTAL SPECIALTY	300	
Administration Spaces		
Reception Area	250	
Receptionist	50	
Chaplain Waiting Room	250	
Wing Chaplain Office	185	(Southern Baptist)

Secretary	50	
Chaplain Offices (4)	600	(Assembly of God, Southern Baptist, Cooperative Baptist Fellowship, Roman Catholic)
Chaplain Assistants (3)	360	Superintendent, Chapel Operations NCOIC, Program Support NCOIC Information Management
Deputy Chaplain	175	(United Methodist)
Chapel Coordinators	120	Catholic Parish Coordinator
Administrative Support	120	Accounting Technician
Staff Office	250	
Conference Room	250	
Copy/File/Storage Room	250	
Break Room	275	
TOTAL ADMIN.	3185	
Education Spaces		
Religious Education Coord.	120	Catholic Religious Education
Music Coordinator	120	
Spiritual Resource Center	325	Library & computers
Youth Center	1000	Media, Lounge, Games
Daycare/Nursery	800	
Flex Classroom Space	4000	3 units break into 9 smaller units
Small Gym	8500	BB Court
Kitchen	1000	
Storage	400	
TOTAL ADMIN.	16265	
BUILDING TOTAL + 33% Circulation, Mech & RR	48526	

Table 1





62A





64A

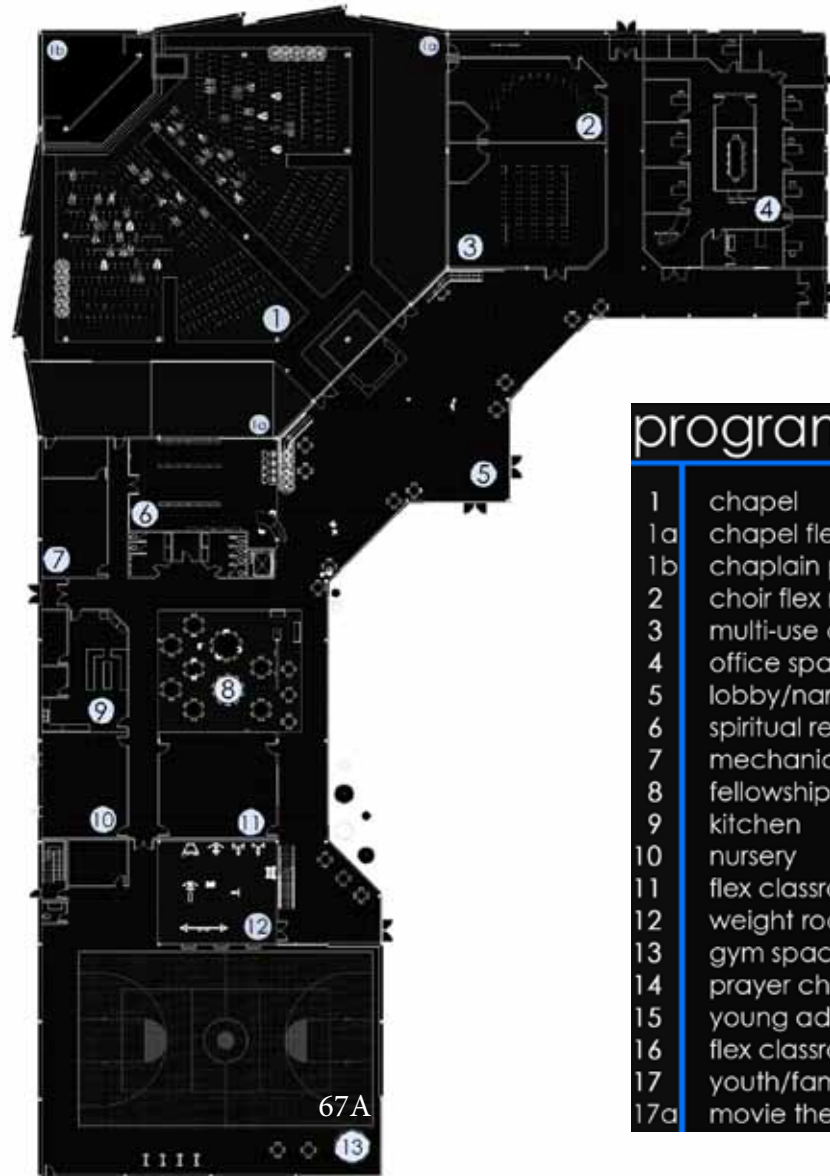




66A

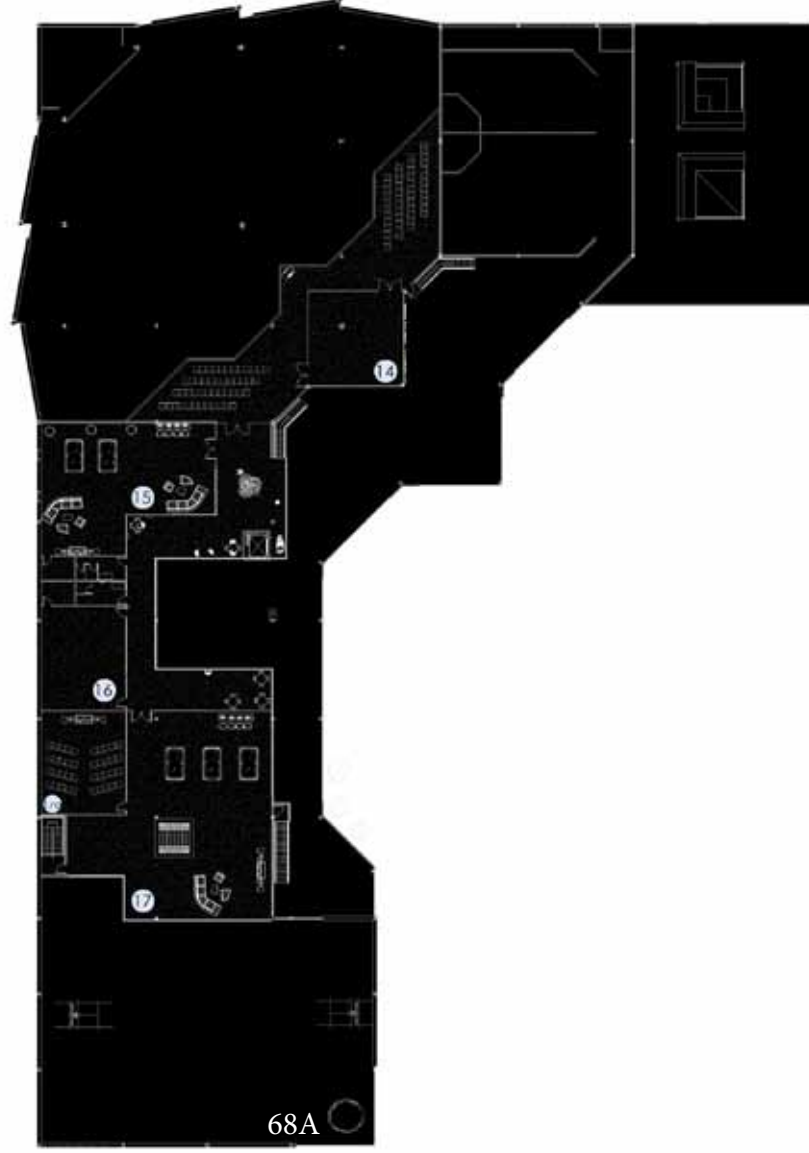
PROGRAM

8⁴ PROGRAM



program

- 1 chapel
- 1a chapel flex space
- 1b chaplain prep/storage
- 2 choir flex room
- 3 multi-use chapel
- 4 office space
- 5 lobby/narthex
- 6 spiritual resource center
- 7 mechanical
- 8 fellowship hall
- 9 kitchen
- 10 nursery
- 11 flex classroom/fellowship expansion
- 12 weight room
- 13 gym space/climbing wall
- 14 prayer chapel
- 15 young adult center
- 16 flex classroom
- 17 youth/family center
- 17a movie theater



68A



69A

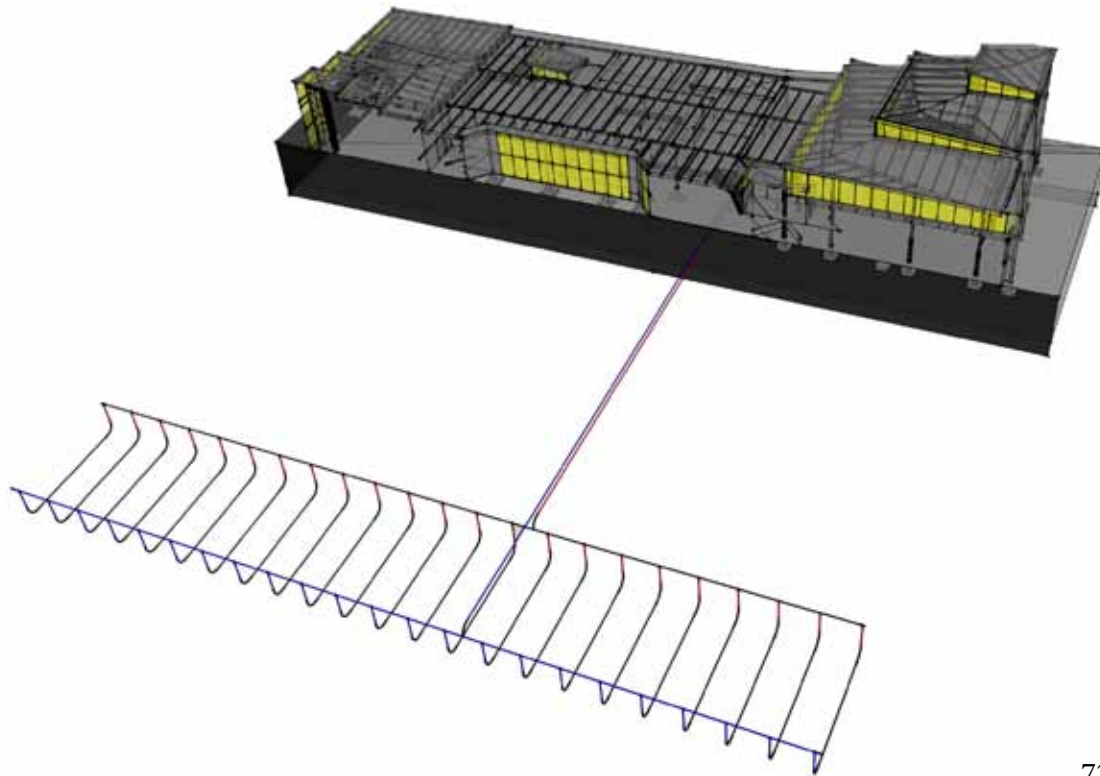


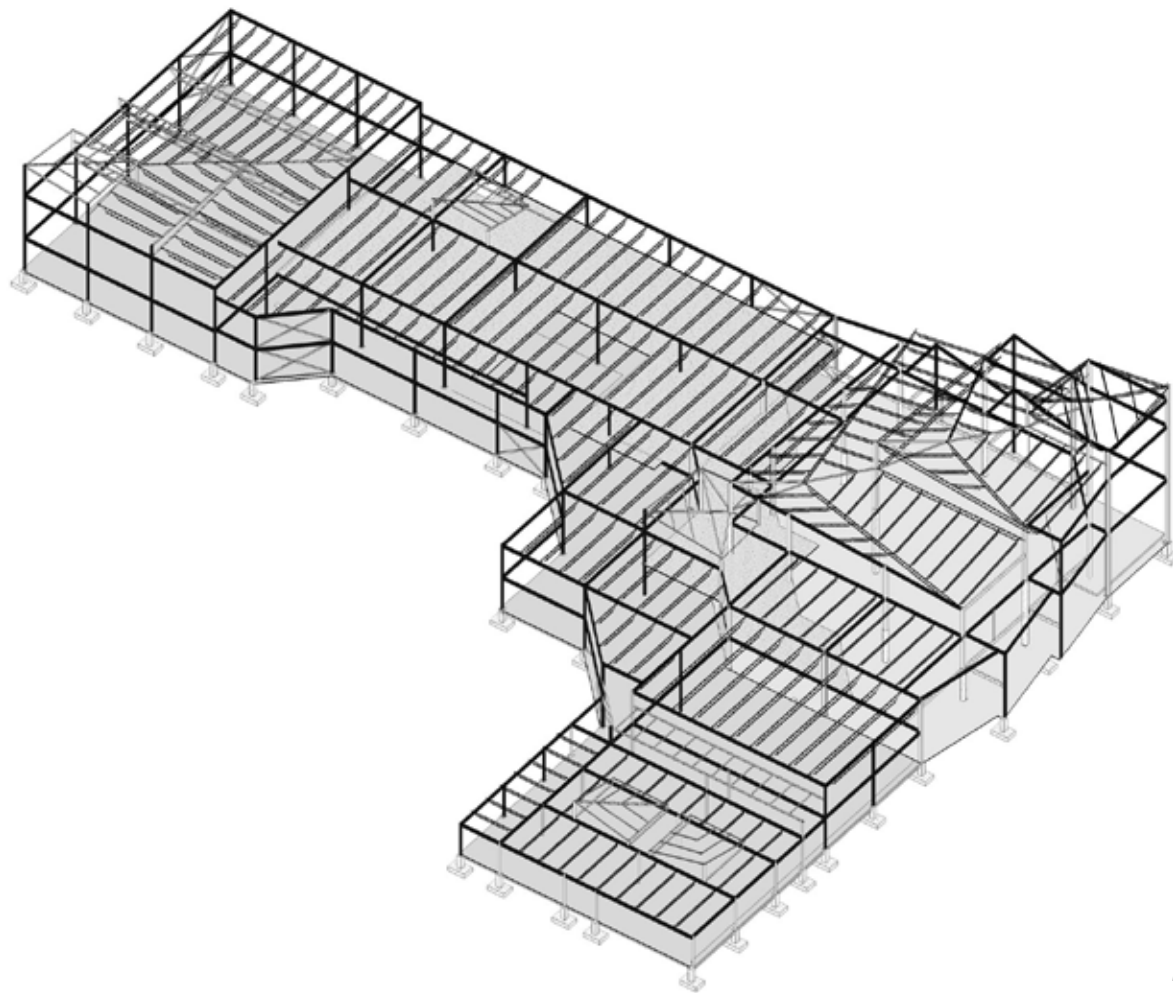


70A



71A





73A

SP PROGRAM





74A

Photographs, Figures and Tables**Photographs**

Cover. Mellgren, J. (2012). Autodesk Revit 2012 Rendering.

1A. [family silhouette]. (n.d.). Retrieved from <http://cobblog.cord.edu/wp-content/uploads/family-silhouette-clip-art.jpg>

2A. Mellgren, J. (2011). Personal photograph.

3A. Filarski, A. (n.d.). From dream to reality. *Recreation management*. Retrieved from <http://www.recmanagement.com/200705aw2n.php>

4A. [lobby]. (n.d.). West Vancouver Community Center. *Open Buildings*. Retrieved from <http://openbuildings.com/buildings/west-vancouver-community-centre-profile-4637/media#!buildings-media/5>

5A. US Air Force Academy Cadet Chapel. (2010). Facebook. Retrieved from <http://www.facebook.com/photo.php?fbid=382409078905&set=a.382401683905.204658.378461893905&type=3&theater>

6A. Studio Red Architects. (n.d.). Fellowship of the woodlands church. *Studio Red Architects*. Retrieved from <http://www.studioredarchitects.com/our-projects/worship-facilities/fellowship-of-the-woodlands.html#projectImage6>

7A. Sammicheli, M. (2010). Ora et labora: a Sesto San Giovanni e stata inaugurata la chiesa progettata da Cino Zucchi = The church designed by Cino Zucchi opens in Sesto San Giovanni. *Abitare*, (508), 76-83.

8A. – 15A. Mellgren, J. (2011). Personal photograph.

16A. Sammicheli, M. (2010). Ora et labora: a Sesto San Giovanni e stata inaugurata la chiesa progettata da Cino Zucchi = The church designed by Cino Zucchi opens in Sesto San Giovanni. *Abitare*, (508), 76-83.

17A. CZA. (2011). Christ's resurrection church. Retrieved from: <http://www.zucchiarchitetti.com>

18A. Frearson, A. (2011). Christ's resurrection church by cino zucchi architetti. *Dezeen magazine*. Retrieved from <http://www.dezeen.com/2011/06/07/christ%E2%80%99s-resurrection-church-by-cino-zucchi-architetti/>

19A. Filarski, A. (n.d.). From dream to reality. *Recreation management*. Retrieved from <http://www.recmanagement.com/200705aw2n.php>

20A. [South elevation]. Ripley, C. (2005). Boundary condition [St. Jamestown Community Centre, Toronto, Canada]. *Canadian architect*, 50(9), 53-56. Retrieved from EBSCOhost.

- 21A. [Wellesley Community centre night shot]. (n.d.). *Toronto*. Retrieved from http://www.toronto.ca/auda/2005_12_honourable_context_wellesley.htm
- 22A. [lobby]. (n.d.). West Vancouver Community Center. *OpenBuildings*. Retrieved from <http://openbuildings.com/buildings/west-vancouver-community-centre-profile-4637/media#!buildings-media/5>
- 23A. [section diagram]. (n.d.). West Vancouver Community Centre. *OpenBuildings*. Retrieved from <http://openbuildings.com/buildings/west-vancouver-community-centre-profile-4637/media#!buildings-media/13>
- 24A. Henry, C. West Vancouver Community Centre. (2011, March). *Arch Daily*. Retrieved from <http://www.archdaily.com/121025/west-vancouver-community-centre-hcma/>
- 25A. [hallway]. (n.d.). West Vancouver Community Centre. *OpenBuildings*. Retrieved from <http://openbuildings.com/buildings/west-vancouver-community-centre-profile-4637/media#!buildings-media/31>
- 26A. [courtyard entrance] Studio Red Architects. (n.d.). Fellowship of the woodlands church. *Studio Red Architects*. Retrieved from <http://www.studioredarchitects.com/our-projects/worship-facilities/fellowship-of-the-woodlands.html#projectImage6>
- 27A. [atrium] Studio Red Architects. (n.d.). Fellowship of the woodlands church. *Studio Red Architects*. Retrieved from <http://www.studioredarchitects.com/our-projects/worship-facilities/fellowship-of-the-woodlands.html#projectImage1>
- 28A. [aerial perspective]. Retrieved from maps.google.com
- 29A. [protestant interior] US Air Force Academy Cadet Chapel. (2010). *Facebook*. Retrieved from <http://www.facebook.com/photo.php?fbid=382409078905&set=a.382401683905.204658.378461893905&type=3&theater>
- 30A. [protestant interior] US Air Force Academy Cadet Chapel. (2010). *Facebook*. Retrieved from <http://www.facebook.com/photo.php?fbid=382497963905&set=a.382401683905.204658.378461893905&type=3&theater>
- 31A. [protestant interior] US Air Force Academy Cadet Chapel. (2010). *Facebook*. Retrieved from <http://www.facebook.com/photo.php?fbid=382498113905&set=a.382401683905.204658.378461893905&type=3&theater>
- 32A. Perez, A. (2010, June). AD classics: USAFA cadet chapel /skidmore, owings & merrill. *ArchDaily*. Retrieved from http://www.archdaily.com/63449/ad-classics-usafa-cadet-chapel-skidmore-owings-merrill-2/usafa__1st_phase_site_plan_1962-2/

APPENDIX

33A. [old bridge] Family old photos.com. 6 miles west of Minot, ND. Retrieved from

http://www.familyoldphotos.com/8c/2g/g_n_railroad_bridge_near_minot_n.htm

34A. [Air Force weather agency]. (2010, February). AFWA HEADQUARTERS BUILDING. Retrieved from

<http://www.afweather.af.mil/library/factsheets/factsheet.asp?id=13030>

35A. Hinnant, J. (2011, June). Aerial view of FORSCOM/USARC HQ, May 10, 2010. Retrieved from <http://usarmy.vo.llnwd.net/e2/-images/2010/06/11/76798/>

36A. - 60A. Mellgren, J. (2011). Personal photograph.

61A. – 71A. Mellgren, J. (2012). Autodesk Revit 2012 Rendering.

72A. Mellgren, J. (2012). Google Sketchup Model.

73A. Mellgren, J. (2012). Autodesk Revit 2012 Rendering.

74A. Mellgren, J. (2012). Autodesk Revit 2012 Rendering.

75A. Stromback, C. (Photographer). (2011). Personal photograph.

Figures

1.1. [Circulation Diagram]. Mellgren, J. (2012). Adobe Photoshop.

1.2. [Plan to Elevation Diagram]. Mellgren, J. (2012). Adobe Photoshop.

2.1. [Section-Plan Diagram]. Mellgren, J. (2012). Adobe Photoshop.

2.2. [Spatial Diagrams]. Mellgren, J. (2012). Adobe Photoshop.

3.1. [Circulation Diagram]. Mellgren, J. (2012). Adobe Photoshop.

3.2. [Structure Diagram]. Mellgren, J. (2012). Adobe Photoshop.

3.3. [Plan to Elevation Diagram]. Mellgren, J. (2012). Adobe Photoshop.

3.4. [Spatial Diagram]. Mellgren, J. (2012). Adobe Photoshop.

4.1. [Circulation Diagram]. Mellgren, J. (2012). Adobe Photoshop.

4.2. [Plan to Elevation Diagram]. Mellgren, J. (2012). Adobe Photoshop.

5.1. [Spatial Diagrams]. Mellgren, J. (2012). Adobe Photoshop.

- 5.2. [Spatial Diagrams] Mellgren, J. (2012). Adobe Photoshop.
- 5.3. [Circulation Diagram] Mellgren, J. (2012). Adobe Photoshop.
- 5.4. [Section Diagram] Mellgren, J. (2012). Adobe Photoshop Image Underlay : Perez, A. (2010, June). AD classics: USAFA cadet chapel/skidmore, owings & merrill. ArchDaily. Retrieved from <http://www.archdaily>
- 6.1. [Map Diagram] Mellgren, J. (2012). Adobe Photoshop [aerial perspective]. Image Retrieved from maps.google.com
- 6.2. [Site Diagram] Mellgren, J. (2012). Adobe Photoshop [aerial perspective]. Image Retrieved from maps.google.com
- 6.3. [Site Diagram] Mellgren, J. (2012). Adobe Photoshop Image Retrieved from maps.google.com
- 7.1. [Precipitation Chart] Mellgren, J. (2012). Adobe Photoshop.
- 7.2. [Temperature Chart] Mellgren, J. (2012). Adobe Photoshop.
- 7.3. [Windrose Chart] Mellgren, J. (2012). Adobe Photoshop.
- 7.4. [Sun Path Chart] Mellgren, J. (2012). Adobe Photoshop.
- 7.5. [Spaces Diagram] Mellgren, J. (2012). Adobe Photoshop.
- 7.6. [Spaces Matrix] Mellgren, J. (2012). Adobe Photoshop.

Tables

1. 81 [Program Chart] Mellgren, J. (2012). Microsoft Excel.

REFERENCE LIST

5th Bomb Wing Public Affairs Office. (2009, December). Minot air force base. *Minot Air Force Base*. Retrieved from

<http://www.minot.af.mil/library/factsheets/factsheet.asp?id=3787>

55th Wing Public Affairs. (2010, February). AFWA headquarters building. Retrieved from

<http://www.afweather.af.mil/library/factsheets/factsheet.asp?id=13030>

AF Mentor. (2009). Commissioned officer oath of office. *AF Mentor*. Retrieved from http://www.afmentor.com/ceremony/Oath_Of_Office.htm

Air Force Academy. (2011, December). Cadet chapel. *U.S. Air Force Academy*. Retrieved from

<http://www.usafa.af.mil/information/factsheets/factsheet.asp?id=9415>

Air Force Personnel Center (AFPC). (n.d.). Air Force personnel demographics. *Official Website of the US Air Force*. Retrieved from:

<http://www.afpc.af.mil/library/airforcepersonneldemographics.asp>

Bowen G.L., Mancini J.A., Martin J.A., Ware, W.B., Nelson J.P. (2003). Promoting the adaptation of military families: An empirical test of a community practice model. *Family Relations*, 52(1), 33-44.

BrainyQuote.com. (n.d.). Retrieved from http://www.brainyquote.com/quotes/authors/f/frank_lloyd_wright.html

Brinsfield, J. (2011, July). The human, spiritual, ethical dimensions of leadership in preparation for combat. *Fires*. Retrieved from

<http://www.readperiodicals.com/201107/2477297321.html>

Brown, G. (n.d.). Exploring Minot 1885-1900. Retrieved from www.minotlibrary.org/exploring%20minot%201885-1900.doc

Brown, G. (n.d.). Minot history through slides 1900-1920. Retrieved from www.minotlibrary.org/minot_history_throughslides1900-1920.htm

Crist, G. (2010). Life centre [Melbourne, Australia]. *Architecture Australia*, 99(2), 69-74. Retrieved from EBSCOhost

Dickenson, C. (n.d.). Minot history 1920-1940. Retrieved from www.minotlibrary.org/minot_history1920-1940.htm

FEMA. (2011). Souris basin regional recovery strategy, Minot, Burlington and Ward County North Dakota. Retrieved from

<http://www.minotnd.org/pdf/flood/Minot%20draft%20plan.pdf>

Gehl, J. (2006). Life, spaces, buildings and in said order, please. In M. Moor & J. Rowland (Eds.), *Urban design futures* (pp.69-75). New York: Routledge.

Henry, C. (2011, March). West Vancouver community centre. *Arch Daily. HCMA*. Retrieved from <http://www.archdaily.com/121025/west-vancouver-community-centre-hcma/>

Karbuz, S. (2007, May). US military energy consumption-facts and figures. Energy Bulletin. Retrieved from <http://www.energybulletin.net/node/29925>

Lechner, N. (2009). Heating cooling lighting, sustainable design methods for architects. Third edition. (pp.69-75). Hoboken, New Jersey: John Wiley & Sons Inc.

Military building designed to meet LEED silver standards. (2010, December 10). Green Building News. Retrieved from <http://www.greenbuildingnews.com/articles/2010/12/20/military-building-designed-meet-leed-silver-standards>

Minot Air Force Base. (n.d.). Minot air force base history. *Minot Air Force Base*. Retrieved from <http://www.minot.af.mil/library/history.asp>

Reinkober Drummet, A., Coleman, M., Cable, S. (2003). Family Relations. Military families under stress: Implications for family life education, 52(3), 279–287.

Ripley, C. (2005). Boundary condition [St. Jamestown Community Centre, Toronto, Canada]. *Canadian architect*, 50(9), 53-56. Retrieved from EBSCOhost.

Sammicheli, M. (2010). Ora et labora: a Sesto San Giovanni e stata inaugurata la chiesa progettata da Cino Zucchi = The church designed by Cino Zucchi opens in Sesto San Giovanni. *Abitare*, (508), 76-83.

Sanders, J.O. (1994). *Spiritual leadership: A commitment to excellence for every believer*. Chicago: The Moody Bible Institute of Chicago.

Sinkfield, R. (2007, June). Architectural Compatibility Guide. *AF Center for engineering and the environment*. Retrieved from <http://www.afcee.af.mil/shared/media/document/AFD-070919-041.pdf>

Srinivasan, S., O'Fallon, L.R., Deary, A. (2003). Creating healthy communities, healthy homes, healthy people: Initiating a research agenda on the built environment and public health. *American Journal of Public Health*, 93(9), 1446-1450.

Studio Red Architects. (2011). Fellowship of the Woodlands Church. Retrieved from <http://www.studioredarchitects.com/our-projects/worship-facilities/fellowship-of-the-woodlands.html>

U.S. Air Force. (2012). Our values. *U.S. Air Force*. Retrieved from <http://www.airforce.com/learn-about/our-values/>

Wates, Nick. (2000). The community planning handbook. London: Earthscan Publications Ltd. Retrieved from: http://books.google.com/books?hl=en&lr=&id=KR7H2ucil2kC&oi=fnd&pg=PA2&dq=built+environment+directing+people&ots=-_e1BoTNq8&sig=jr5b2Ru9khjh3W4t82tMeJuprw#v=onepage&q&f=false

PERSONAL INFORMATION



Address

317 11th Ave N
Fargo, ND 58102

Cell Phone

612-708-1751

Email

jeff.mellgren.af@gmail.com

Hometown

Waconia, MN

NDSU Quote: "A place of limitless horizons"